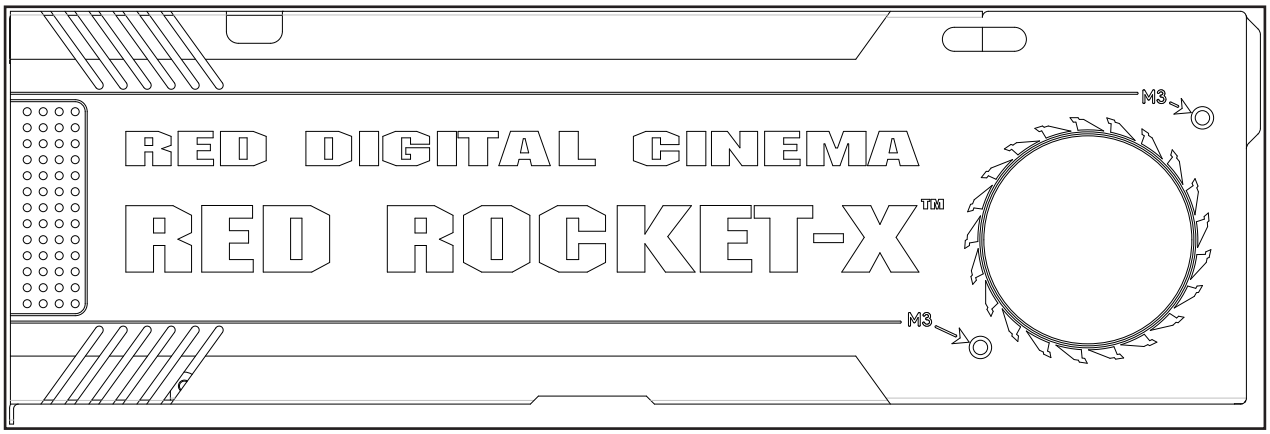
RED ROCKET-X
INSTALLATION INSTRUCTIONS



RED ROCKET-X

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FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENTS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE: Connecting this device to peripheral devices that do not comply with Class A requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

CAUTION: If the device is changes or modified without permission from RED, the user may void his or her authority to operate the equipment.

EUROPEAN UNION COMPLIANCE STATEMENTS

RED herewith declares that the following product(s)

- RED ROCKET-X

according to the provisions of the mentioned EC Directives—including their relevant revisions at the time of this declaration—is (are) in conformity with the detailed standards or other normative documents.

- EMC Directive 2004/108/EC
- Low-Voltage Directive 2006/95/EC

INFORMATION

Products with the CE marking comply with the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Product Family Standards.

- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN 55024
- EN 61000-4-2
- EN 61000-4-3

ROHS COMPLIANCE

The EU directive 2002/95/EC 'Restriction of Hazardous Substances (RoHS)' prohibits the use of certain substances in electrical and electronic equipment.

RESPONSIBLE PARTY:

RED Digital Cinema
34 Parker
Irvine, CA 92618
USA

SAFETY INSTRUCTIONS

Please read the following safety instructions very carefully before attempting any installation and/or performing any work on the RED ROCKET-X.

If the RED ROCKET-X is not used in compliance with the safety instructions, the warranty and all resulting liability claims will be void.

- DO NOT use the RED ROCKET-X near water. Avoid exposing your RED ROCKET-X to moisture. The unit is not waterproof, so contact with water could cause permanent damage to the unit as well as electric shock and serious injury to the user. DO NOT use the RED ROCKET-X in the rain or under other conditions with high moisture, and immediately remove power source if the RED ROCKET-X is exposed to moisture.

WARNING: To reduce the risk of fire or electric shock, DO NOT expose the RED ROCKET-X to rain or moisture.

- DO NOT expose your RED ROCKET-X to excessive vibration or impact (shock). Be careful not to drop your RED ROCKET-X. Internal mechanisms may be damaged by severe shock.
- DO NOT operate or store near any heat sources such as radiators, heat registers, stoves, or any other apparatus that produce heat. Store in a protected, level and ventilated place. Avoid exposure to temperature extremes, damp, severe vibration, strong magnetic fields, direct sunlight or local heat sources during storage. Recommended storage and usage temperatures for your RED ROCKET-X are:
  - Operating range: 5°C to 40°C (41°F to 104°F)
  - Storage range: –20°C to 50°C (–4°F to 122°F)

  If there are any performance issues with your RED ROCKET-X when operating within this temperature range, please file a support ticket on https://support.red.com.
- Only use the RED ROCKET-X when it is in good working order.
- The system in which you are trying to install the RED ROCKET-X usually works with voltages that can be hazardous to your health. Never work on the system or access its interior with any power cable attached and plugged into a power source. Make sure the power supply is disconnected from the components you intend to work on.
- Computer hardware contains components that are sensitive to electrostatic discharge. If you touch them without precautionary measures, they can be destroyed. Use a wrist strap connected to ground when accessing electronic parts and take care of grounding the video system. Avoid touching the components of the computer system and the RED ROCKET-X whenever possible.
- Computer hardware contains components that are sensitive to changing voltages. Connecting or disconnecting the RED ROCKET-X to or from peripheral hardware while any system component is powered on may damage the hardware. Power off all peripheral hardware before connecting or disconnecting any component, including the RED ROCKET-X.
- The RED ROCKET-X may not be misused, abused, physically damaged, neglected, exposed to fire, water or excessive changes in the climate or temperature, or operated outside maximum rating.
- DO NOT perform any changes or extensions to the RED ROCKET-X whatsoever.

CAUTION: Refer all service and repair to qualified RED service personnel. To reduce the risk of electric shock, and damage to the RED ROCKET-X, DO NOT attempt to perform any servicing other than any procedures that are recommended in the operating instructions.

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01 RED ROCKET-X OVERVIEW

INTRODUCTION

Optimized for the 6K RED DRAGON® sensor, the RED ROCKET-X® is designed to accelerate your R3D® workflow. The RED ROCKET-X processes and transcodes files up to 5 times faster than the RED ROCKET®. A redesigned chassis works to protect the card, which uses a full-length x16 PCIe port for installation in your Mac Pro® (models Early 2009, Mid 2010, and Mid 2012), Thunderbolt™ expansion chassis, PCIe expansion chassis, or Windows®-based computer.

RED ROCKET-X provides real time, full quality playback onto a 1080/2k/4k monitor or projector via HD-SDI through REDCINE-X PRO®.

The RED ROCKET-X supports all EPIC, SCARLET®, and RED ONE® formats.

NOTE: You can install and use a RED ROCKET and a RED ROCKET-X in the same system. However, you will only be able to use one (1) of these cards at a time. For example, DaVinci Resolve can access a RED ROCKET while REDCINE-X PRO accesses a RED ROCKET-X.

NOTE: The RED ROCKET-X does not require or support the RED ROCKET Breakout Box. The RED ROCKET Breakout Box is only compatible with the RED ROCKET.

SCOPE OF THESE INSTRUCTIONS

In order to install the RED ROCKET-X system, you should have experience with installing hardware components in a computer system and be familiar with the hardware structure and interior of such a system. Additionally, you should have general knowledge in the field of digital video and be comfortable working with computer software.

SYSTEM REQUIREMENTS

REQUIRED HARDWARE

The computer system must meet the following hardware requirements in order to use the RED ROCKET-X:

- PCIe slot that accepts a x16 card, and has 16 lanes of data for maximum performance
- Physical space to accommodate the 12" RED ROCKET-X card
- One (1) 6-pin PCIe power cable (for Thunderbolt expansion chassis and PC installations)
- 2048 MB RAM

SUPPORTED HARDWARE

The RED ROCKET-X can be installed in any of the following:

- Mac Pro
- Thunderbolt expansion chassis
- PCIe expansion chassis
- Windows-based computer

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ADDITIONAL MAC PRO REQUIRED HARDWARE

The RED ROCKET-X can be installed directly in the following Mac Pro models:

- Early 2009 (machine model 4,1)
- Mid 2010 (machine model 5,1)
- Mid 2012 (machine model 5,1)

NOTE: The Mac Pro Late 2013 (machine model 6,1) does not support expansions cards. However, you can connect a RED ROCKET-X to a Mac Pro Late 2013 via a Thunderbolt expansion chassis.

SUPPORTED OPERATING SYSTEMS

The RED ROCKET-X can be used with the following operating systems:

- Mac OS X® 10.7 or later
- Windows Vista® or later
- Linux® (Red Hat)

NOTE: Be sure that you have installed the latest system updates and service packs for your system; otherwise you may encounter software or hardware problems.

NOTE: If you are using a Linux application with RED ROCKET, you will need to obtain the appropriate driver from the company providing the application. If you are interested in developing your own tools for Linux you may want to sign up for the R3D SDK. RED® DOES NOT provide drivers for Linux.

REQUIRED SOFTWARE

- **RED ROCKET-X driver**: Part of the RED ROCKET-X Installer, available for download at www.red.com/downloads.
- **RED ROCKET-X firmware**: Part of the RED ROCKET-X Installer, available for download at www.red.com/downloads.
- **REDCINE-X PRO**: Available for download at www.red.com/downloads.

Please contact third-party software vendors about the availability of other RED ROCKET-X enabled software.

RED ROCKET-X COMPONENTS

Each RED ROCKET-X package contains the following:

- RED ROCKET-X
- HD-SDI slot filler
- PCIe 6-pin to 6-pin Dual Y Power Splitter (for Mac Pro installations)
- PC extender (for Windows installations)
- Two (2) M3x0.7 x 6 mm pan head screws (for PC extender installation)

HOW TO HANDLE THE RED ROCKET-X

When handling the RED ROCKET-X, hold the card by the gray card chassis and the metal bracket. Avoid touching the board and connectors.

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ADDITIONAL RESOURCES

The following resources offer additional information about RED, RED ROCKET-X, and the RED community:

- **RED.com**: Check the official RED website for the latest information about RED products.
- **RED Learn Articles**: RED offers in-depth technical articles about RED cameras, post-production, and digital cinematography.
- **RED.com/downloads**: Go to the RED Downloads page to download the latest firmware, operation guides, and post-production software.
- **DSMC Toolkit**: Go to the RED Downloads page to find the DSMC Toolkit, which offers many helpful tools and resources to customize and improve your DSMC workflow.
- **Support.red.com**: Check the RED SUPPORT site for FAQs, or to file a support ticket.
- **Bomb Squad Support**: For more information, contact your Bomb Squad representative.
- **Reduser.net**: Discuss all things RED on the REDUSER third-party forum.

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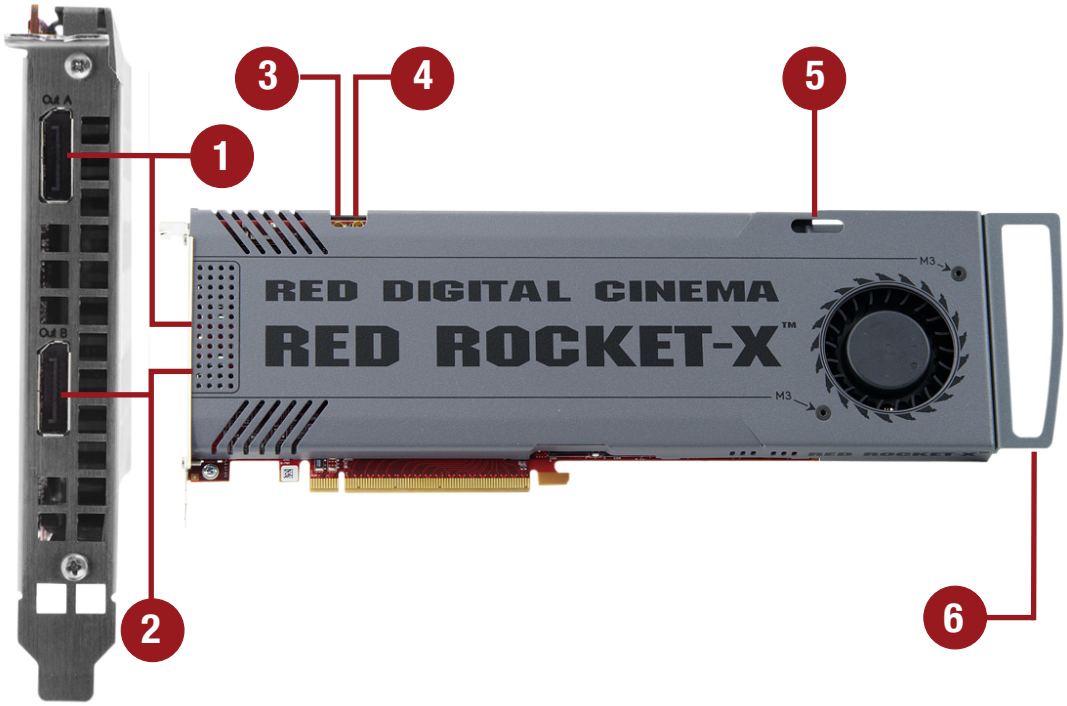
02 RED ROCKET-X CONNECTORS

RED ROCKET-X CONNECTORS



RED ROCKET-X Connectors

#	CONNECTOR	DESCRIPTION
1	Out A[1]	Dual-mode DisplayPort (DP++) output connector
2	Out B[2]	Dual-mode DisplayPort (DP++) output connector
3	SDI Out A	Connection for SDI Out A on the HD-SDI Slot Filler
4	SDI Out B	Connection for SDI Out B on the HD-SDI Slot Filler
5	Power	6-pin PCIe female connector
6	PC extender	PC extender to fit the RED ROCKET-X® securely in the PCIe slot and card holder

1. HDMI adaptor for HDMI over DisplayPort is not supported.
2. Disabled.

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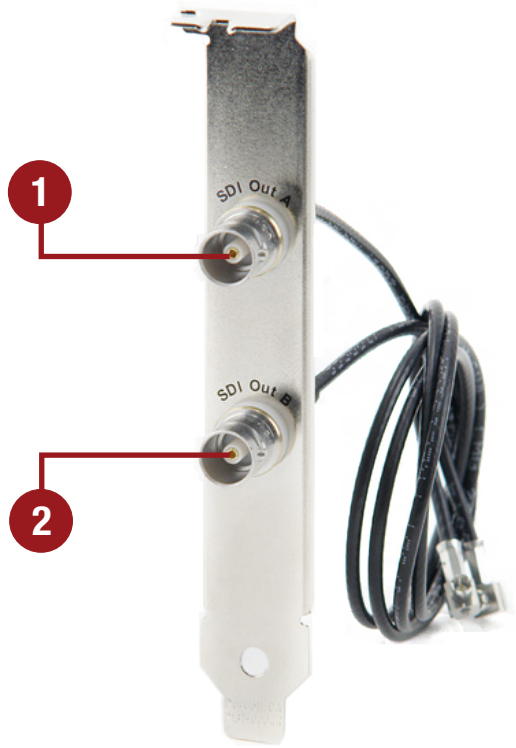
HD-SDI SLOT FILLER CONNECTORS

The HD-SDI slot filler provides optional high-definition serial digital interface (HD-SDI) connectors for the RED ROCKET-X. Installing the HD-SDI slot filler is optional. Review your system and project requirements before you decide whether or not to install the HD-SDI slot filler.

For more information, go to "Supported HD-SDI Signals" on page 46.



HD-SDI Slot Filler

#	CONNECTOR	DESCRIPTION
1	SDI Out A	BNC connector for an output of digital video signals (serial digital interface, port A)
2	SDI Out B	BNC connector for an output of digital video signals (serial digital interface, port B)

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03 INSTALL IN A MAC PRO

The RED ROCKET-X® can be installed directly in the following Mac Pro® models:

- Early 2009 (machine model 4,1)
- Mid 2010 (machine model 5,1)
- Mid 2012 (machine model 5,1)

The Mac Pro Late 2013 (machine model 6,1) does not support expansions cards. However, you can connect a RED ROCKET-X to a Mac Pro Late 2013 via a Thunderbolt™ expansion chassis. For more information about installing a RED ROCKET-X in a Thunderbolt expansion chassis, go to “Install in a Thunderbolt Expansion Chassis” on page 16.

NOTE: DO NOT install more than one (1) RED ROCKET-X in a Mac Pro.

POWER SUPPLY

The RED ROCKET-X must be connected to your Mac Pro power supply via a PCIe 6-pin to 6-pin power cable. The RED ROCKET-X ships with a PCIe 6-pin to 6-pin Dual Y Power Splitter in case both of the power connectors in your Mac Pro are in use, or in case you do not have an extra PCIe 6-pin to 6-pin power cable.

WARNING: If you use the PCIe 6-pin to 6-pin Dual Y Power Splitter (included) to connect only the RED ROCKET-X or graphics card, ensure that the unused connector does not come in contact with a fan or any moving parts.

WARNING: Regardless of how you connect the RED ROCKET-X, DO NOT overload the Mac Pro power supply.

WARNING: DO NOT connect both connectors of the PCIe 6-pin to 6-pin Dual Y Power Splitter to your graphics card.

INSTALL RED ROCKET-X AND HD-SDI SLOT FILLER

WARNING: The computer system you are installing the RED ROCKET-X in works with voltages that can be hazardous to your health.

Follow the instructions below to install the RED ROCKET-X and HD-SDI slot filler (optional) in a Mac Pro system:

1. Ensure that the computer is turned off.
2. Wait 5 to 10 minutes to ensure that the system components cool down.
3. Touch the metal on the outside of the computer to discharge any static electricity from your body.

   NOTE: To avoid generating static electricity while installing the RED ROCKET-X, DO NOT walk around the room until you have completed the installation and closed the computer.
4. Unplug the power cable and all external cables from the computer.

   WARNING: Never work on the system or access its interior while any power cables are plugged in.
5. Hold the side access panel and lift the latch on the back of the computer.

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6. Remove the side access panel.

Remove Panel

7. Remove all hard drives except the one in the first bay (the one farthest to the left).
8. Loosen the two (2) thumbscrews that secure the PCI bracket to the enclosure and remove the PCI bracket.
9. Remove any cards that are not in slot 1 from the system.
10. Press the button on the PCI slider and move the PCIe fan to the side to create more room for installing the RED ROCKET-X (you will slide the PCIe fan back into place after you install the RED ROCKET-X).

Slide PCIe Fan Away

11. Connect your power cable(s) to the Mac Pro based on your configuration needs:
    - If the graphics card is connected to one Mac Pro power connector and the other power connecter is unused, connect a 6-pin PCIe power cable (either a PCIe 6-pin to 6-pin power cable ***or*** the included PCIe 6-pin to 6-pin Dual Y Power Splitter) to power connector B on the backplane board (this is the upper power connector that is closer to the optical drive). You will connect the 6-pin PCIe power cable to the RED ROCKET-X in Step 17.
    - If both Mac Pro power connectors are in use, disconnect the graphics card from the power connector and connect the PCIe 6-pin to 6-pin Dual Y Power Splitter (included) to power connector B on the back-plane board (this is the upper power connector that is closer to the optical drive). You will connect the PCIe 6-pin to 6-pin Dual Y Power Splitter to the graphics card and the RED ROCKET-X in Steps 17-18.

    NOTE: For more information on different ways to connect power, go to "Power Supply" on page 10.

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12. Feed the 6-pin PCIe power cable outside of the computer so that it is not in your way when you install the RED ROCKET-X.

Connect Power

13. Angle the RED ROCKET-X so that the end with the DisplayPort connections is angled toward the upper right corner.
14. Insert the RED ROCKET-X into the system so that the metal bracket at the end with the DisplayPort connections clears the top.

Angle RED ROCKET-X

15. Straighten the RED ROCKET-X.

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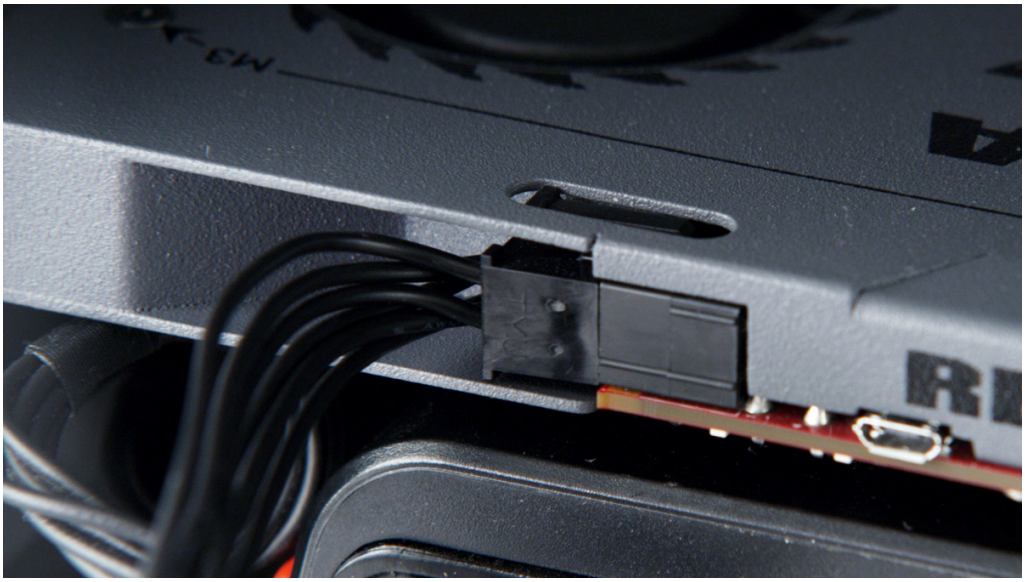
16. Line up the RED ROCKET-X connectors with slot 2, and then gently but firmly press the card into the slot, ensuring that the lip at the end slides between slot 2 and slot 3.

Insert RED ROCKET-X

NOTE: To prevent damage to your system and the RED ROCKET-X, DO NOT rock the card or use excessive force when installing the RED ROCKET-X.

17. Plug your 6-pin PCIe power cable (either a PCIe 6-pin to 6-pin power cable ***or*** the included PCIe 6-pin to 6-pin Dual Y Power Splitter) into the RED ROCKET-X. Make sure that the latch of the power cable aligns with the corresponding slot on the RED ROCKET-X.

    WARNING: If you use the PCIe 6-pin to 6-pin Dual Y Power Splitter (included) to connect only the RED ROCKET-X or graphics card, ensure that the unused connector does not come in contact with a fan or any moving parts.



Connect Power to RED ROCKET-X

18. If you are using the PCIe 6-pin to 6-pin Dual Y Power Splitter (included) to connect both the graphics card and the RED ROCKET-X to a single power connector in the Mac Pro, plug the second connector on the PCIe 6-pin to 6-pin Dual Y Power Splitter (included) into the graphics card. For more information on different ways to connect power, go to “Power Supply” on page 10.
19. If you are using the HD-SDI slot filler, follow the instructions below to install and connect the HD-SDI slot filler:

    For more information, go to “Supported HD-SDI Signals” on page 46.

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A. Remove one (1) free slot bracket from the system.

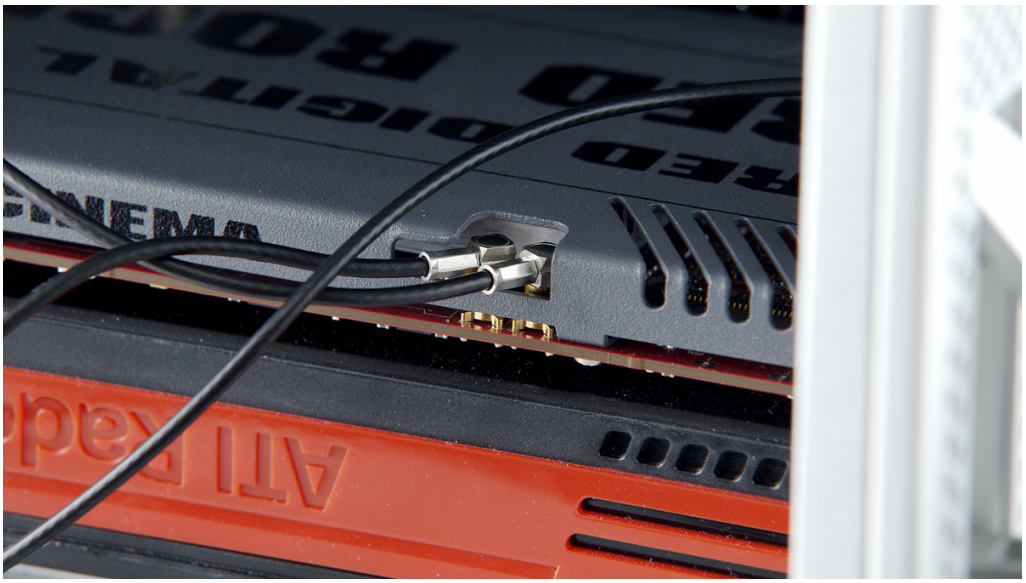
B. Slide the HD-SDI slot filler into the empty slot so that the SDI Out B connector is toward the back.

Install HD-SDI Slot Filler

CAUTION: Ensure that the HD-SDI slot filler or connectors DO NOT contact other components inside the computer.

C. Connect the SDI Out A cable on the HD-SDI slot filler to the SDI Out A connector on the RED ROCKET-X. The SDI Out A connector is the right connector when the RED ROCKET-X is installed.

D. Connect the SDI Out B cable on the HD-SDI slot filler to the SDI Out B connector on the RED ROCKET-X. The SDI Out B connector is the left connector when the RED ROCKET-X is installed.



Connect HD-SDI Slot Filler to RED ROCKET-X

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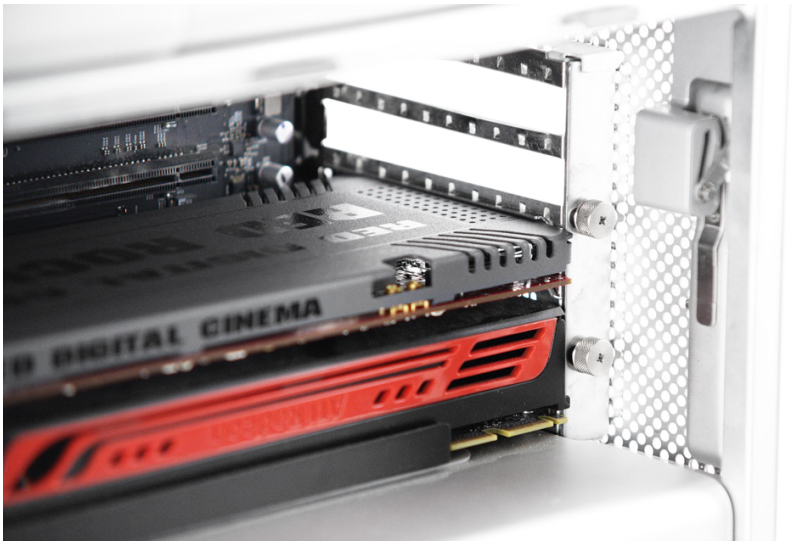
20. Place the PCI bracket under the brace and tighten the two (2) thumbscrews to secure the RED ROCKET-X.
    NOTE: The photo below shows the system without the HD-SDI slot filer installed.



Install PCI Bracket

21. Reinstall any cards you removed from the system.
22. Reinstall any hard drives you removed from the system.
23. Slide the PCIe fan toward the RED ROCKET-X until it locks back into place.

Slide PCIe Fan to Original Position

24. Reinstall the side access panel.
25. Reconnect all cables to the computer system.
26. To install or upgrade the RED ROCKET-X driver and firmware, go to “Install Driver and Firmware” on page 25.

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04 INSTALL IN A THUNDERBOLT EXPANSION CHASSIS

POWER SUPPLY

Before installing the RED ROCKET-X®, ensure that you have the appropriate power connector or power cable adaptor to plug into the RED ROCKET-X 6-pin power connector. The 6-pin PCIe power cable that is included with the RED ROCKET-X is for Mac Pro® installations only, and is not compatible with a Thunderbolt expansion chassis.

PCIE SLOT CONSIDERATIONS

SELECT A PCIE SLOT

Since the majority of Thunderbolt™ expansion chassis do not have x16 slots, install the RED ROCKET-X in the slot that has the highest number of electrical PCIe lanes. Refer to the Thunderbolt expansion chassis manual to determine which slot has the most number of electrical PCIe lanes and can accommodate a full-length x16 card.

If you plan on installing the RED ROCKET-X in a physical PCIe slot that is smaller than the connector at the bottom of the RED ROCKET-X, ensure that there is an opening at the end of the PCIe slot.

PCIE LANE SPEEDS

Due to Thunderbolt 1.0 specifications, each slot is limited to x4 lane speeds. Full-resolution, real-time playback of 4K footage with a recording time base of 23.98 FPS should be unaffected.

INSTALL RED ROCKET-X

Since each Thunderbolt expansion chassis is different, the instructions in this section are general and cover the essential steps for installing a RED ROCKET-X in a Thunderbolt expansion chassis.

Depending on how your system is set up, you may need to rearrange components in your chassis or perform actions not described in these instructions in order to successfully install the RED ROCKET-X. For more information about installing components in your chassis, refer to the chassis manufacturer instructions.

NOTE: Some Thunderbolt expansion chassis may not have a slot for the HD-SDI slot filler.

WARNING: The computer system you are installing the RED ROCKET-X in works with voltages that can be hazardous to your health.

Follow the instructions below to install the RED ROCKET-X in a Thunderbolt expansion chassis:

1. Ensure that the Thunderbolt expansion chassis is turned off.
2. Wait 5 to 10 minutes to ensure that the system components cool down.
3. Unplug the power cable and all external cables from the chassis.

   WARNING: Never work on the system or access its interior while any power cables are plugged in.
4. Discharge any static electricity from your body.

   NOTE: To avoid generating static electricity while installing the RED ROCKET-X, DO NOT walk around the room until you have completed the installation and closed the chassis.

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5. Open the chassis casing so that you can access the PCIe slots.

Open Casing

6. If the chassis has any screws installed that are intended to secure the card to the chassis, remove those screws.
7. Line up the RED ROCKET-X connectors with the slot that has the highest number of electrical PCIe lanes, and then gently but firmly press the card into the slot. For more information about choosing a slot, go to “Select a PCIe Slot” on page 16.

   NOTE: To prevent damage to your system and the RED ROCKET-X, DO NOT rock the card or use excessive force when installing the RED ROCKET-X.

Insert RED ROCKET-X

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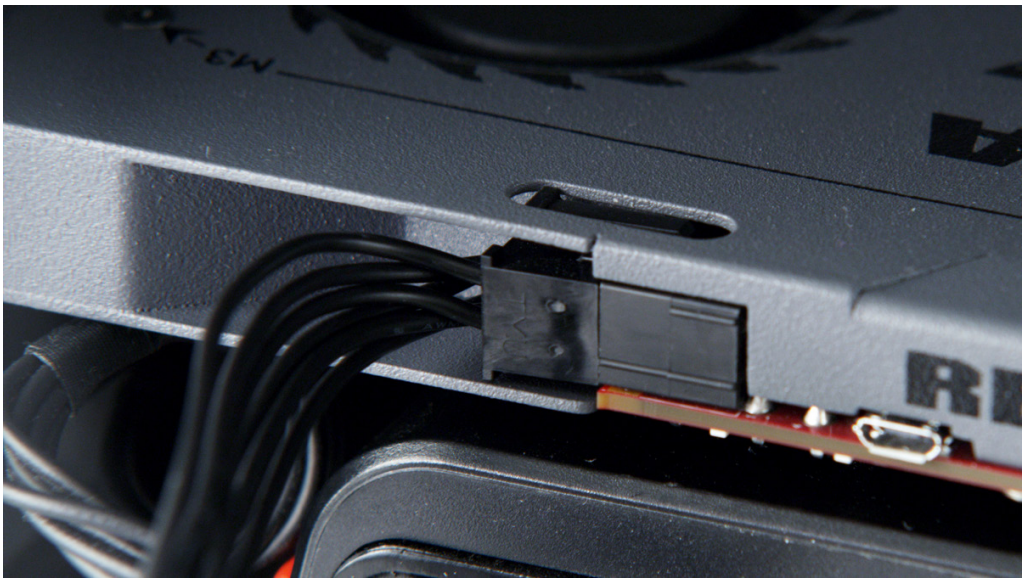
8. Plug the Thunderbolt expansion chassis 6-pin PCIe power cable into the RED ROCKET-X. Make sure that the latch of the power cable aligns with the corresponding slot on the RED ROCKET-X. For more information, go to “Power Supply” on page 16.



Connect Power to RED ROCKET-X

9. If the chassis has any screws that are intended to secure the card to the chassis, install those screws.
10. If you are using the HD-SDI slot filler, follow the instructions below to install and connect the HD-SDI slot filler:

    For more information, go to “Supported HD-SDI Signals” on page 46.

    A. Remove one (1) free slot bracket from the system.
    B. Slide the HD-SDI slot filler into the empty slot so that the SDI Out B connector is toward the back.

Install HD-SDI Slot Filler

CAUTION: Ensure that the HD-SDI slot filler or connectors DO NOT contact other components inside the chassis.

    C. Hand-tighten the screw that attaches the HD-SDI slot filler to the chassis. If it is difficult to hand-tighten the screw, use a Phillips #1 screwdriver.
    D. Connect the SDI Out A cable on the HD-SDI slot filler to the SDI Out A connector on the RED ROCKET-X. The SDI Out A connector is the right connector when the RED ROCKET-X is installed.

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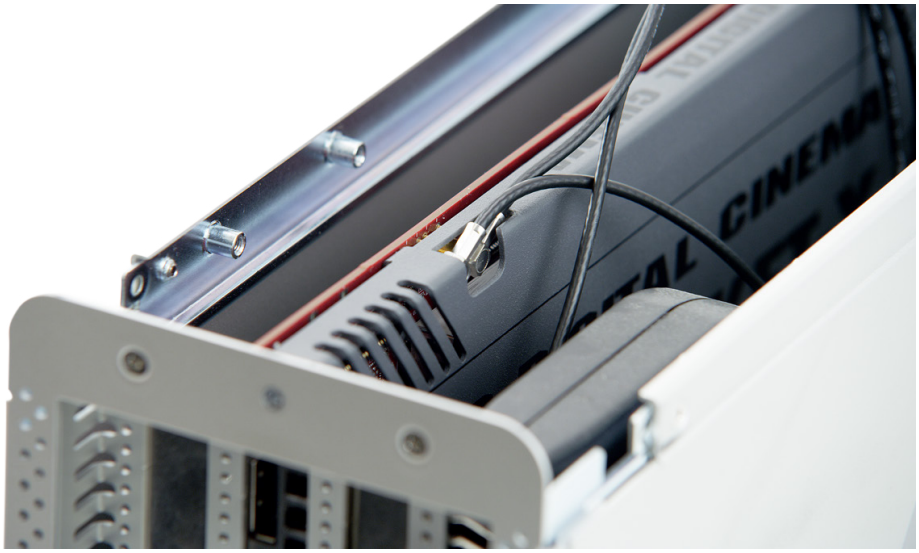
E. Connect the SDI Out B cable on the HD-SDI slot filler to the SDI Out B connector on the RED ROCKET-X. The SDI Out B connector is the left connector when the RED ROCKET-X is installed.



Connect HD-SDI Slot Filler to RED ROCKET-X

11. Reinstall the chassis casing.
12. Reconnect all cables to the chassis.
13. To install or upgrade the RED ROCKET-X driver and firmware, go to “Install Driver and Firmware” on page 26.

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05 INSTALL IN A WINDOWS-BASED COMPUTER

REQUIRED TOOL

- Phillips #1 screwdriver

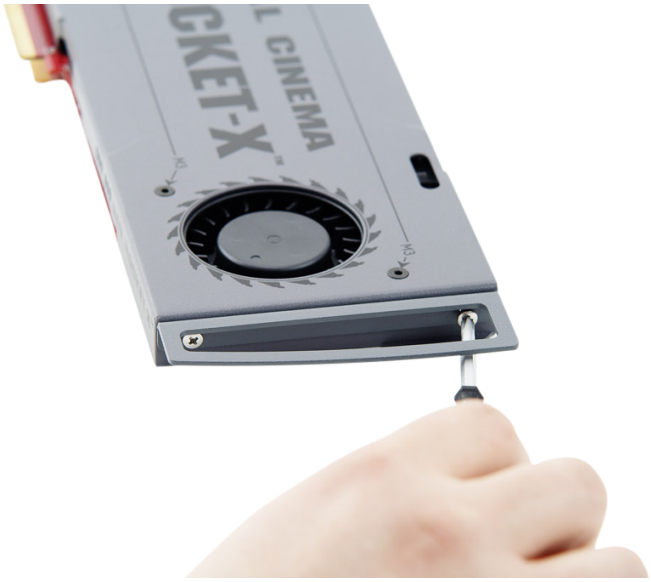
POWER SUPPLY

Before installing the RED ROCKET-X®, ensure that you have the appropriate power connector or power cable adaptor to plug into the RED ROCKET-X 6-pin power connector. The 6-pin PCIe power cable that is included with the RED ROCKET-X is for Mac Pro® installations only, and is not compatible with a Windows®-based computer.

ATTACH THE PC EXTENDER TO THE RED ROCKET-X

If your Windows-based computer has a PCIe card holder, attach the PC extender (included) to the RED ROCKET-X. When you install the RED ROCKET-X in the Windows-based computer, the PC extender will slide into the PCIe card holder, securing the RED ROCKET-X.

1. Use a Phillips #1 screwdriver to install the two (2) M3 x 0.7 x 6 mm pan head screws (included) that attach the PC extender (included) to the end of the RED ROCKET-X.
   - The PC extender should be flush with the front of the RED ROCKET-X.
   - The wider end of the PC extender should be at the top of the RED ROCKET-X.



Attach PC Extender

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INSTALL RED ROCKET-X AND HD-SDI SLOT FILLER

Since each Windows-based computer is different and highly customizable, the instructions in this section are general and cover the essential steps for installing a RED ROCKET-X and HD-SDI slot filler (optional) in a Windows-based computer.

Depending on how your system is set up, you may need to rearrange components in your system or perform actions not described in these instructions in order to successfully install the RED ROCKET-X and HD-SDI slot filler. For more information about installing components in your system, refer to the computer manufacturer instructions.

WARNING: The computer system you are installing the RED ROCKET-X in works with voltages that can be hazardous to your health.

1. Ensure that the computer is turned off.
2. Wait 5 to 10 minutes to ensure that the system components cool down.
3. Unplug the power cable and all external cables from the computer.

   WARNING: Never work on the system or access its interior while any power cables are plugged in.
4. Discharge any static electricity from your body.

   NOTE: To avoid generating static electricity while installing the RED ROCKET-X, DO NOT walk around the room until you have completed the installation and closed the computer.
5. Lay the Windows-based computer on its side.
6. Open the computer casing so that you can access the PCIe slots. For more information, refer to the computer manufacturer instructions.

Remove Panel

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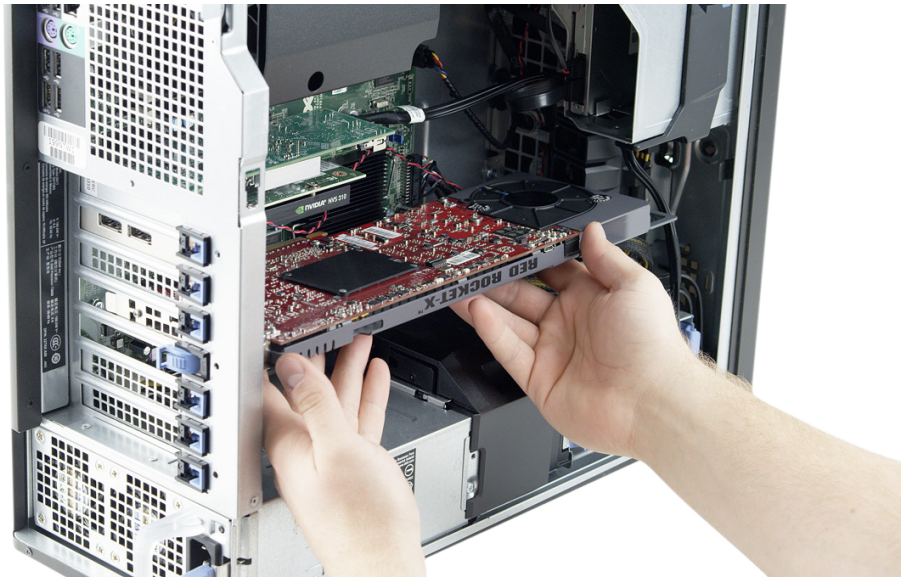
7. Remove one (1) free slot bracket from the system. Depending on your Windows-based computer, you may need to use a Phillips #1 screwdriver to remove the slot bracket.

Remove Slot Bracket

8. Line up the RED ROCKET-X connectors with a PCIe x16 physical slot that provides at least 16 lanes (x16), and then gently but firmly press the card into the slot. If you installed the PC extender, ensure that the PC extender slides into the PCIe card holder.

   NOTE: To prevent damage to your system and the RED ROCKET-X, DO NOT rock the card or use excessive force when installing the RED ROCKET-X.



Insert RED ROCKET-X

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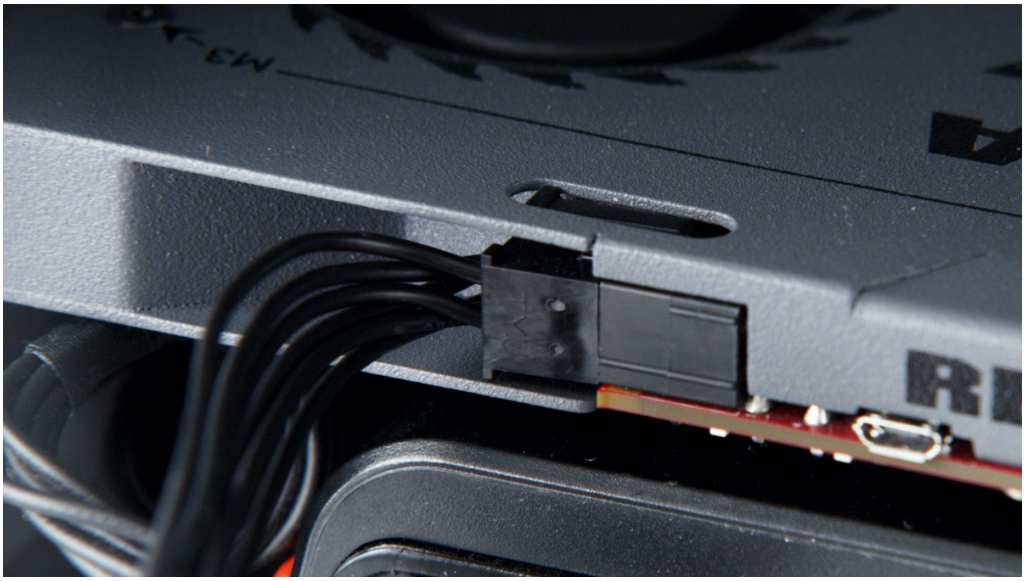
9. Plug the Windows-based computer 6-pin PCIe power cable into the RED ROCKET-X. Make sure that the latch of the power cable aligns with the corresponding slot on the RED ROCKET-X.



Connect Power to RED ROCKET-X

10. If you are using the HD-SDI slot filler, follow the instructions below to install and connect the HD-SDI slot filler:

    For more information, go to "Supported HD-SDI Signals" on page 46.

    A. Remove one (1) free slot bracket from the system. Depending on your Windows-based computer, you may need to use a Phillips #1 screwdriver to remove the slot bracket.

    B. Slide the HD-SDI slot filler into the empty slot so that the SDI Out B connector is toward the back.

Install HD-SDI Slot Filler

    CAUTION: Ensure that the HD-SDI slot filler or connectors DO NOT contact other components inside the computer.

    C. Secure the HD-SDI slot filler. Depending on your Windows-based computer, you may need to use a Phillips #1 screwdriver to install a screw that attaches the HD-SDI slot filler to the computer.

    D. Connect the SDI Out A cable on the HD-SDI slot filler to the SDI Out A connector on the RED ROCKET-X. The SDI Out A connector is the right connector when the RED ROCKET-X is installed.

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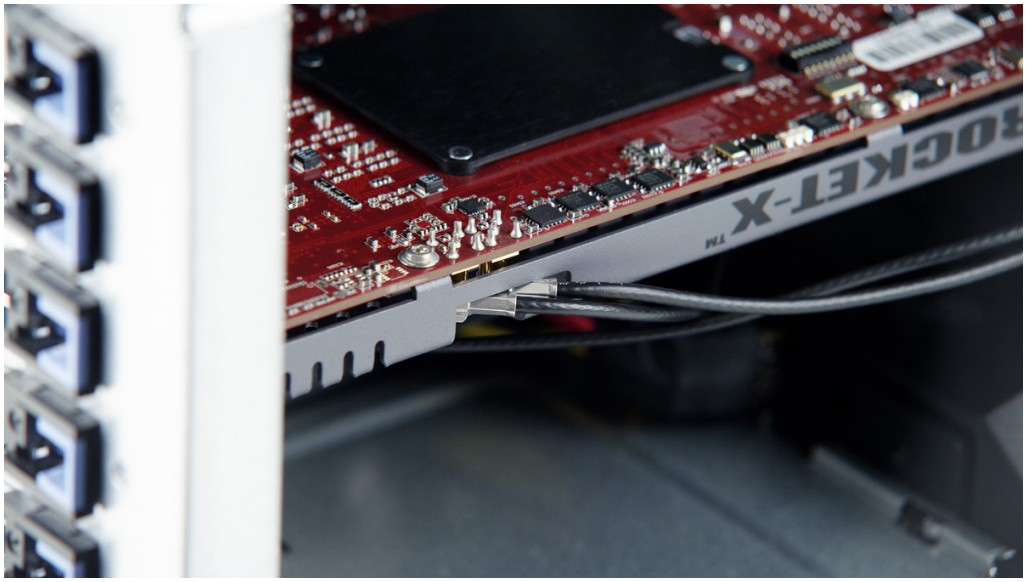
E. Connect the SDI Out B cable on the HD-SDI slot filler to the SDI Out B connector on the RED ROCKET-X. The SDI Out B connector is the left connector when the RED ROCKET-X is installed.



Connect HD-SDI Slot Filler to RED ROCKET-X

11. Reinstall the computer casing.
12. Return the computer to the upright position.
13. Reconnect all cables to the computer system.
14. To install or upgrade the RED ROCKET-X driver and firmware, go to “Install Driver and Firmware” on page 26.

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06 INSTALL DRIVER AND FIRMWARE

DOWNLOAD DRIVER AND FIRMWARE

To download the RED ROCKET-X® driver and firmware, follow the instructions below:

1. Go to www.red.com/downloads.
2. Download the **RED ROCKET-X Installer** to your computer. The drivers, firmware, and installation instructions for the RED ROCKET-X are located inside the installation package.
3. After downloading, you will see the new compressed (zipped) folder in the location to which you downloaded the Installer (your system may unzip the folder automatically).

   The folder name uses this format: RED_Rocket-x_Installer_vx.x.x.
4. Open the zipped folder (your system may unzipped the folder automatically).
5. Extract the folder specific to your operating system (Mac® or Windows®) to your desktop.

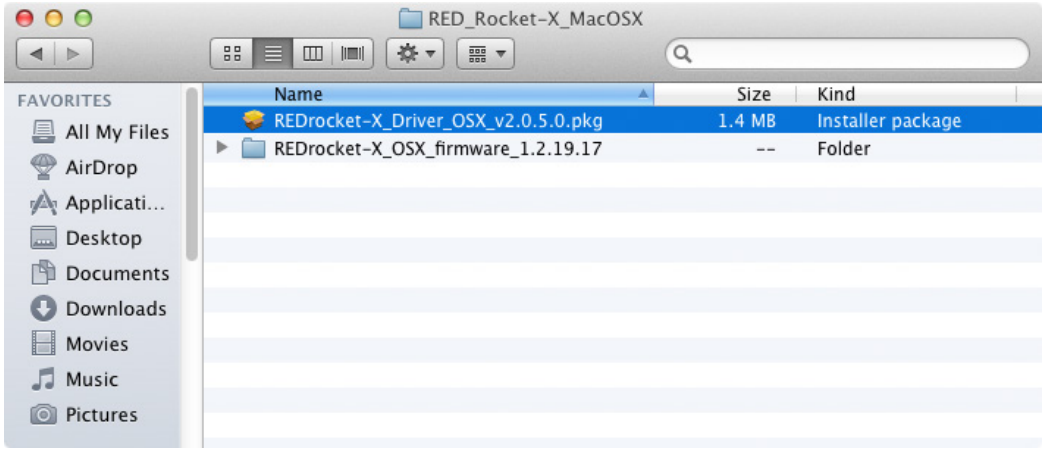
INSTALL RED ROCKET-X DRIVER

INSTALL RED ROCKET-X DRIVER (MAC OS X)

On Mac OS X®, the driver must be installed before upgrading the firmware; otherwise the firmware upgrade will fail.

To install the RED ROCKET-X driver on Mac OS X, follow the instructions below:

1. Ensure that you have already downloaded the RED ROCKET-X Installer. For more information about how to download the RED ROCKET-X Installer, go to “Download Driver and Firmware” on page 25.
2. Locate and open the **RED_Rocket-x_Installer_vx.x.x** > **RED_Rocket-X_MacOSX** folder.
3. Open the **REDrocket-X_Driver_OSX_vx.x.x.x.pkg** file.



The Install RED Rocket-X window opens.

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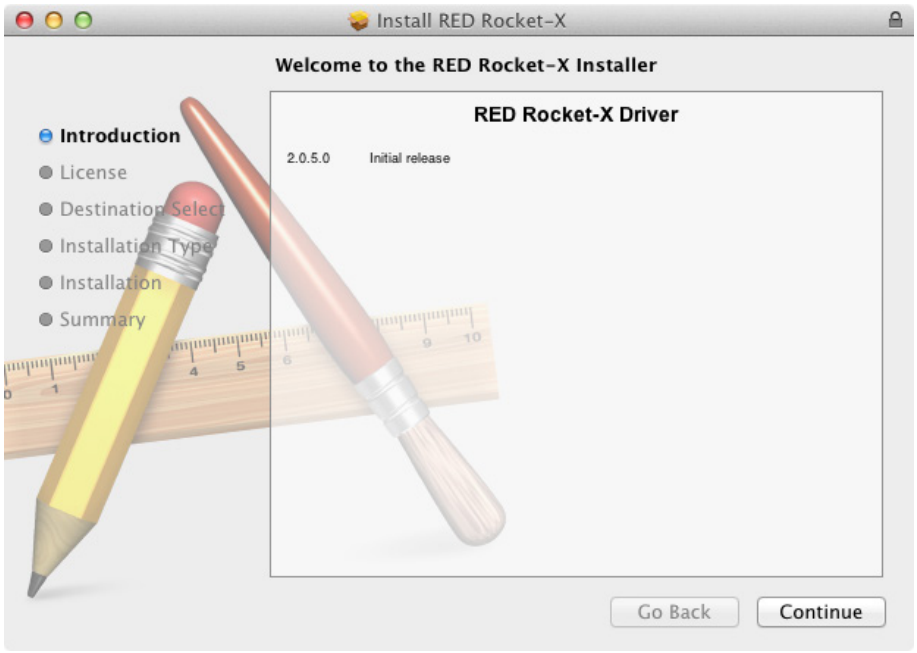
4. Click **Continue** on the Install RED Rocket-X window.



The license agreement displays.

5. Read the license agreement and click **Continue**.

Install RED Rocket-X
Software License Agreement
Introduction
License
Destination Select
Installation Type
Installation
Summary
English
RED Software License Agreement
PLEASE READ THIS SOFTWARE LICENSE AGREEMENT ("LICENSE") CAREFULLY BEFORE USING THE RED SOFTWARE. BY USING THE RED SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE, DO NOT USE THE SOFTWARE. IF YOU DO NOT AGREE TO THE TERMS OF THE LICENSE, CLICK "DISAGREE/DECLINE".
This agreement is made and entered into as of the electronic acceptance click (CLICK AGREE), by and between Red.com, Inc. dba Red Digital Camera. (hereinafter "RED"), a Washington corporation with its principal place of business at 34 Parker, Irvine, CA, and the end customer (hereinafter "Customer") after the electronic acceptance click.
1) License.
a) Grant. Subject to the terms of this Agreement, RED grants to the Customer a limited, non- exclusive, non-transferable license to install and use the RED Software ("RED Software") listed in Exhibit A in object code format for the Customer's business purposes only, which shall include the right to integrate the RED Software
Print...
Save...
Go Back
Continue

An additional confirmation window opens.

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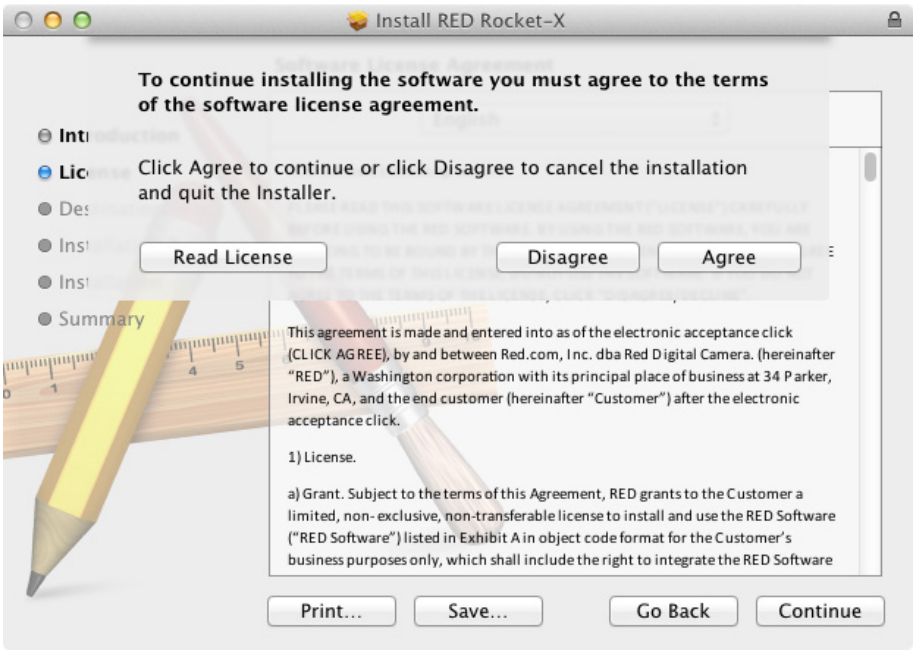
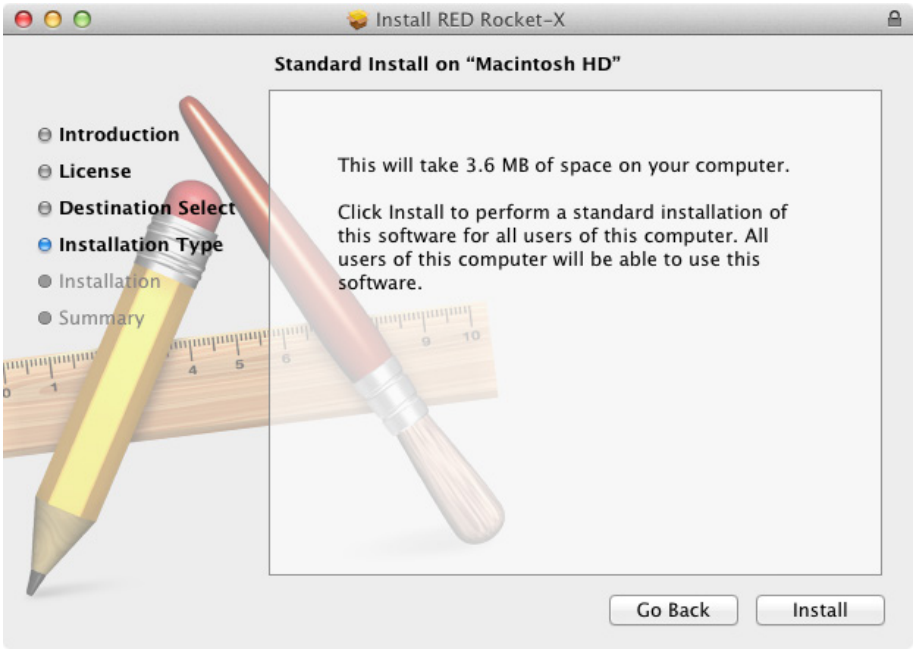
6. Click **Agree**.


Install RED Rocket-X
To continue installing the software you must agree to the terms of the software license agreement.
Click Agree to continue or click Disagree to cancel the installation and quit the Installer.
Read License
Disagree
Agree
Summary
This agreement is made and entered into as of the electronic acceptance click (CLICK AGREE), by and between Red.com, Inc. dba Red Digital Camera. (hereinafter "RED"), a Washington corporation with its principal place of business at 34 Parker, Irvine, CA, and the end customer (hereinafter "Customer") after the electronic acceptance click.
1) License.
a) Grant. Subject to the terms of this Agreement, RED grants to the Customer a limited, non-exclusive, non-transferable license to install and use the RED Software ("RED Software") listed in Exhibit A in object code format for the Customer's business purposes only, which shall include the right to integrate the RED Software
Print...
Save...
Go Back
Continue

7. Click **Install**.

NOTE: Depending on your system, you may be required to enter your user name and password to begin installation.


Install RED Rocket-X
Standard Install on "Macintosh HD"
Introduction
License
Destination Select
Installation Type
Installation
Summary
This will take 3.6 MB of space on your computer.
Click Install to perform a standard installation of this software for all users of this computer. All users of this computer will be able to use this software.
Go Back
Install

A window opens, notifying you that you must shut down your computer after the software finishes installing.

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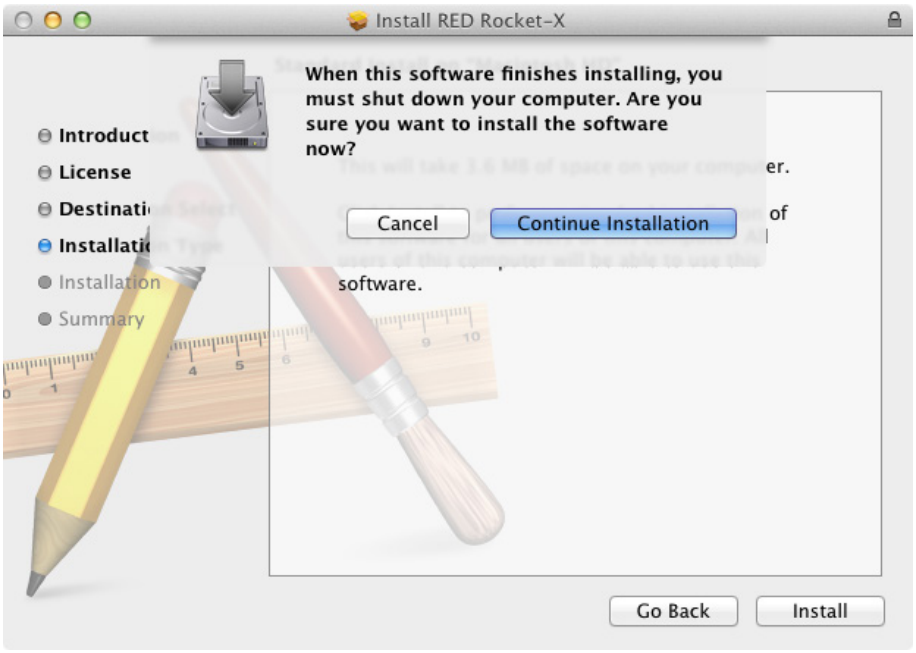
8. Click **Continue Installation**.



A progress bar displays during the installation.

The message “Install Succeeded” displays when installation is complete.

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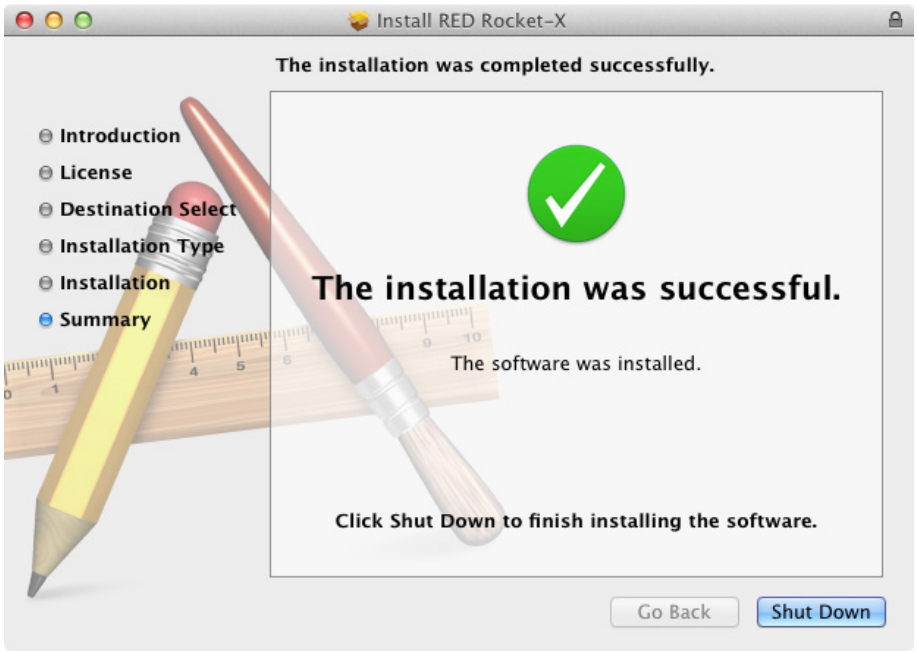
9. Click **Shut Down** to finish installing the software.



   Your computer shuts down.
10. Reboot the computer.
11. To upgrade RED ROCKET-X firmware, go to “Install and Upgrade RED ROCKET-X Firmware” on page 34.

INSTALL RED ROCKET-X DRIVER (WINDOWS)

To install the RED ROCKET-X driver for a Windows-based computer, follow the instructions below:

1. Ensure that you have already downloaded the RED ROCKET-X Installer. For more information about how to download the RED ROCKET-X Installer, go to “Download Driver and Firmware” on page 25.
2. Ensure that you have already installed the RED ROCKET-X.
3. Click **Start**.
4. Right-click **Computer**.
5. Select **Properties**.

   The System window opens.

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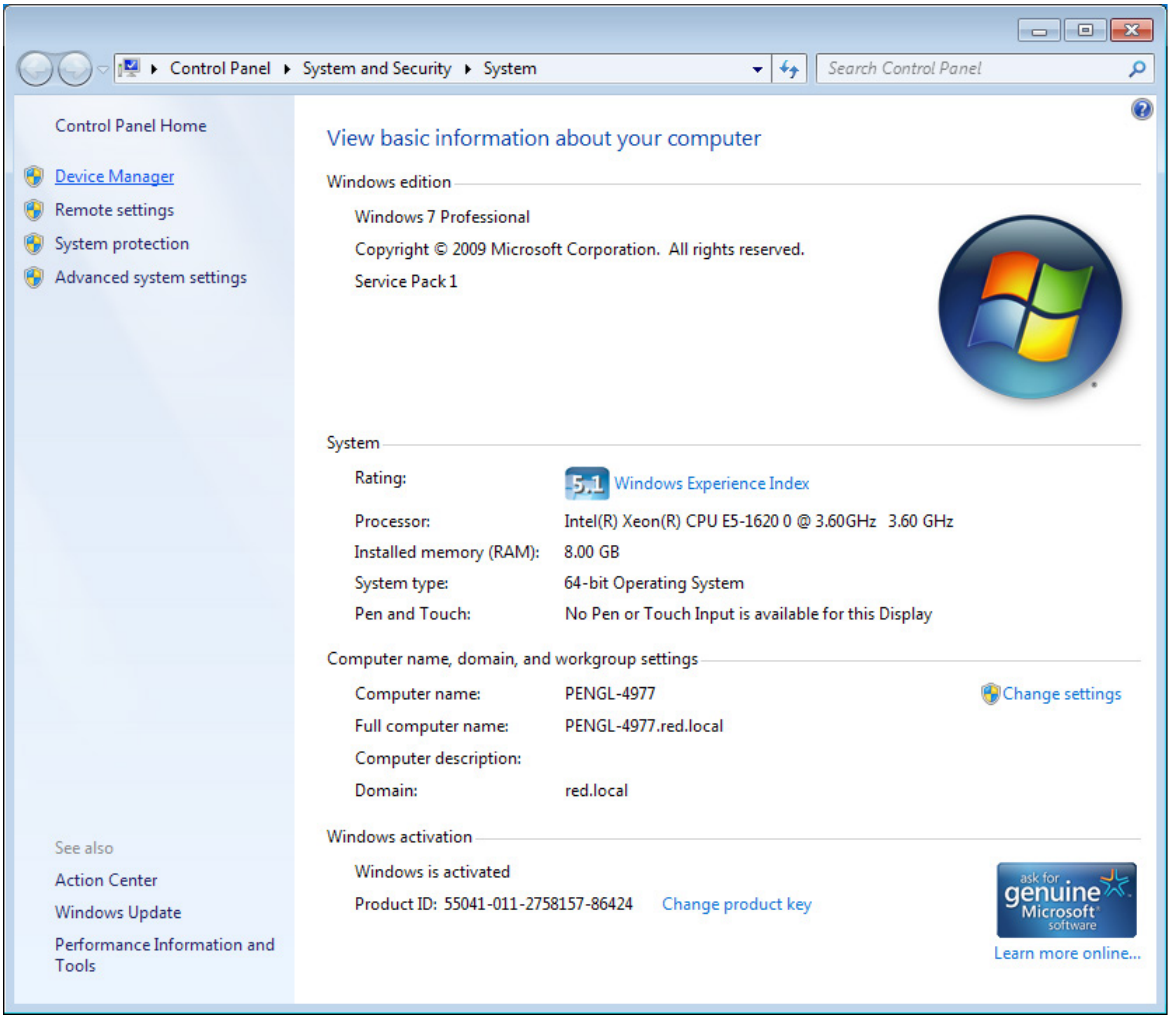
6. Click **Device Manager**.



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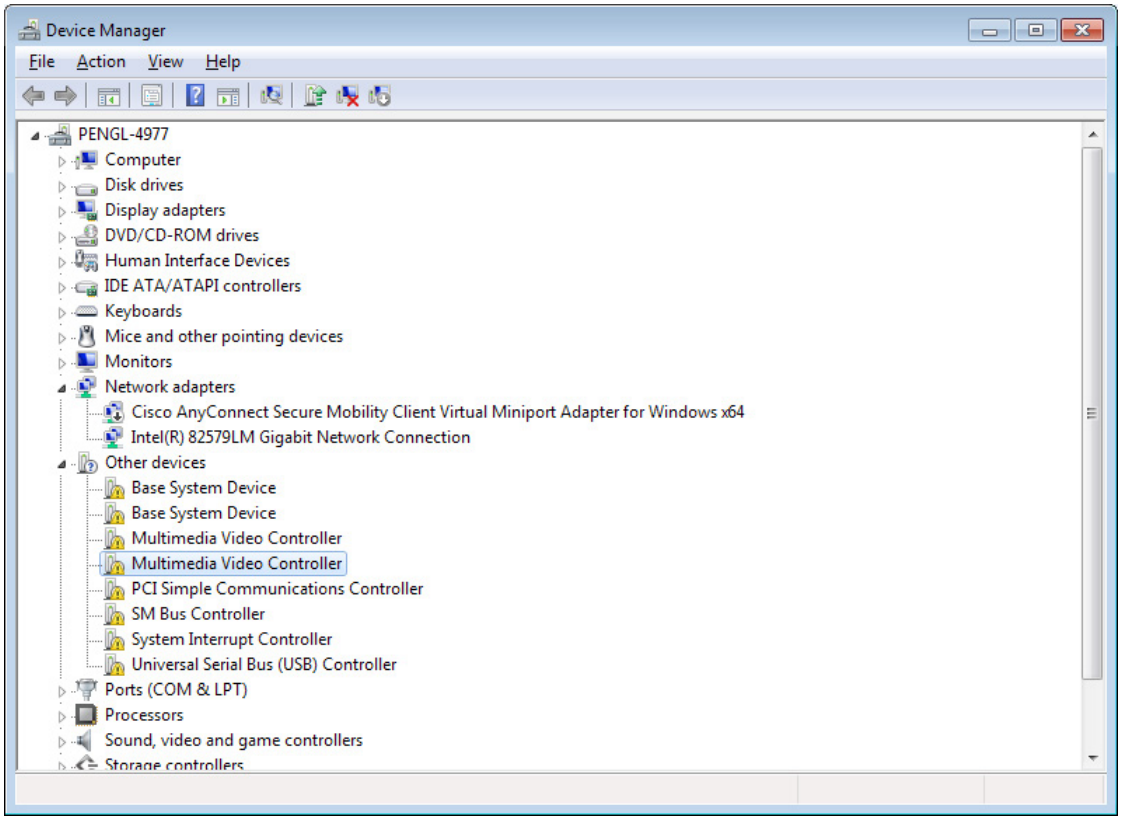
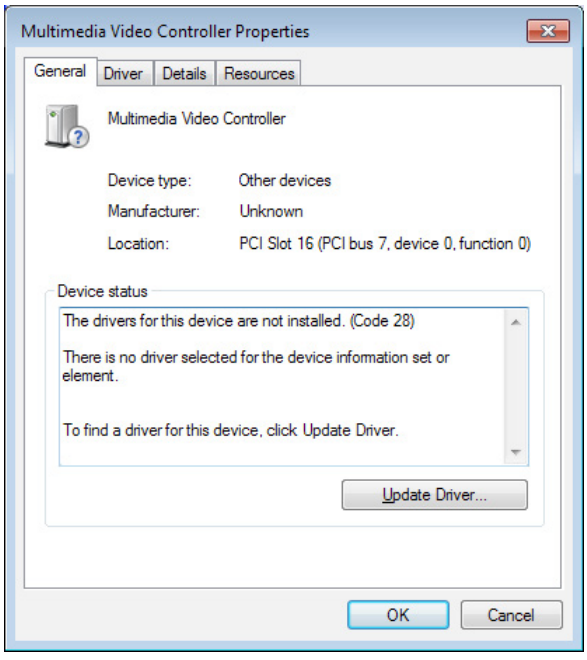
7. Expand **Other devices**, right-click **Multimedia Video Controller**, and select **Properties**.



NOTE: Your Device Manager may display multiple instances of Multimedia Video Controller; you can select any of these instances.

The Multimedia Video Controller Properties window opens.

8. Click **Update Driver**.


Multimedia Video Controller Properties
General
Driver
Details
Resources
Multimedia Video Controller
Device type: Other devices
Manufacturer: Unknown
Location: PCI Slot 16 (PCI bus 7, device 0, function 0)
Device status
The drivers for this device are not installed. (Code 28)
There is no driver selected for the device information set or element.
To find a driver for this device, click Update Driver.
Update Driver...
OK
Cancel

The Update Driver Software - Multimedia Video Controller window opens.

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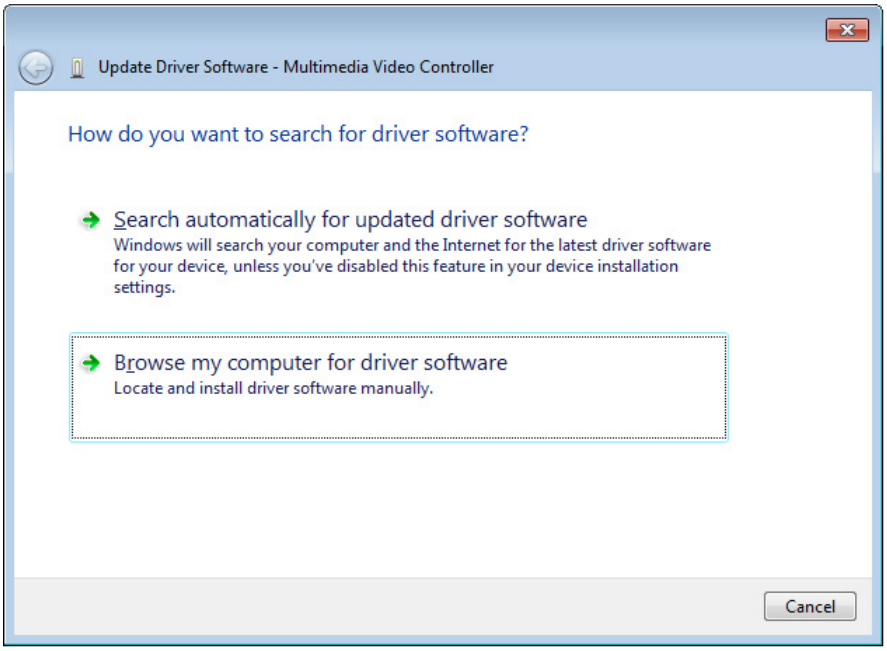
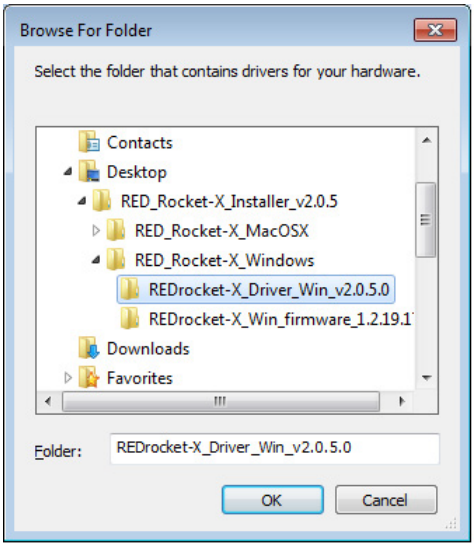
9. Click **Browse my computer for driver software**.


Update Driver Software - Multimedia Video Controller
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

10. Click **Browse** on the Update Driver Software - Multimedia Video Controller window.
11. Navigate to and select the **RED_Rocket-x_Installer_vx.x.x** > **RED_Rocket-X_Windows** > **REDrocket-X_Driver_Win_vx.x.x.x** folder.



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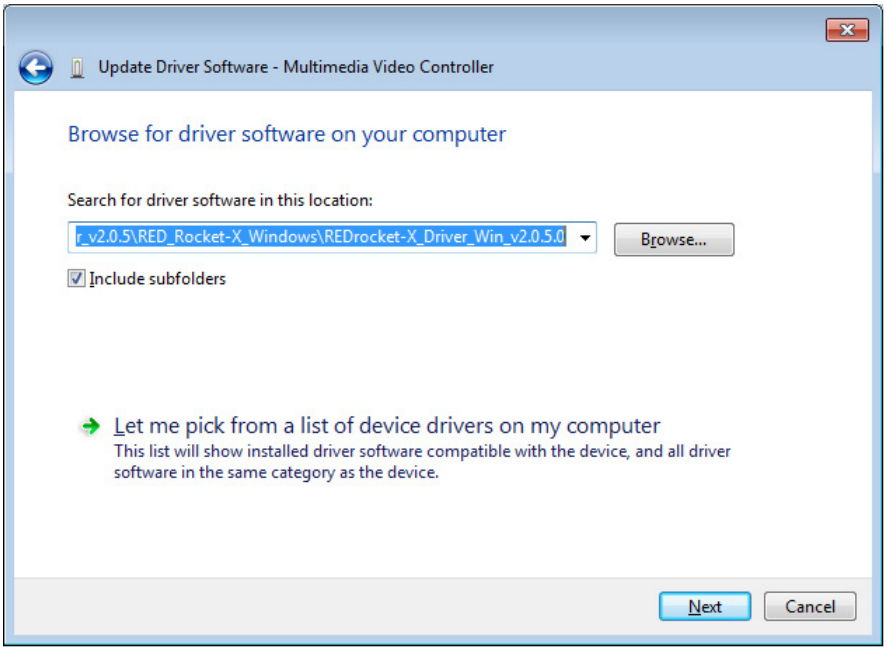
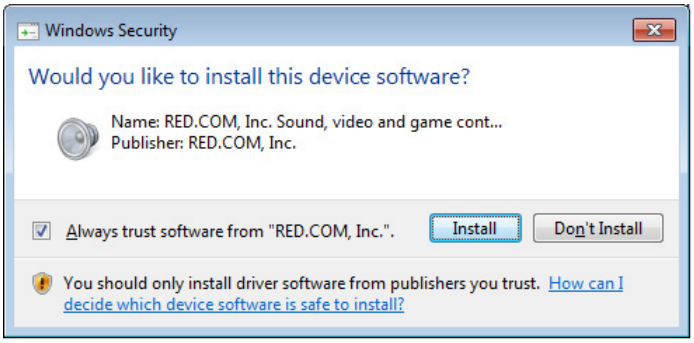
12. Click **Next** on the Update Driver Software - Multimedia Video Controller window.


Update Driver Software - Multimedia Video Controller
Browse for driver software on your computer
Search for driver software in this location:
r_v2.0.5\RED_Rocket-X_Windows\REDrocket-X_Driver_Win_v2.0.5.0
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

13. If the Windows Security window opens, select the **Always trust software from "RED.COM, Inc."** check box and click **Install**.


Windows Security
Would you like to install this device software?
Name: RED.COM, Inc. Sound, video and game cont...
Publisher: RED.COM, Inc.
Always trust software from "RED.COM, Inc.".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

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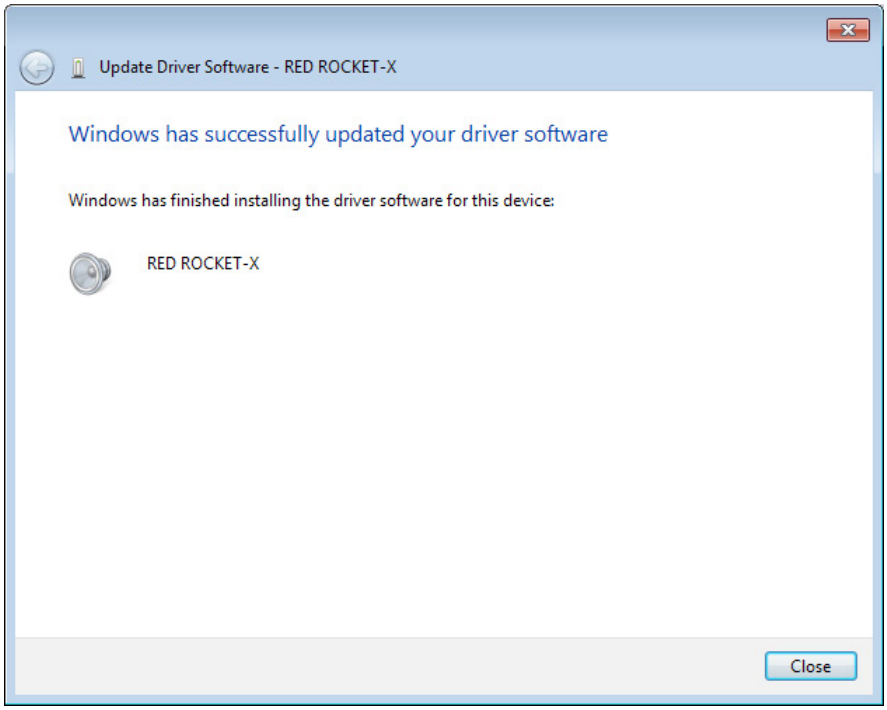
A progress bar shows the progress of the driver installation. The message “Windows has successfully updated your driver software” displays when installation is complete.


Update Driver Software - RED ROCKET-X
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
RED ROCKET-X
Close

14. Restart the computer.
15. To upgrade RED ROCKET-X firmware, go to “Install and Upgrade RED ROCKET-X Firmware” on page 34.

INSTALL AND UPGRADE RED ROCKET-X FIRMWARE

On Mac OS X, the driver must be installed before upgrading the firmware; otherwise the firmware upgrade will fail.

To install the RED ROCKET-X driver, follow the instructions below:

1. Ensure that you have already installed the RED ROCKET-X hardware.
2. Ensure that you have already downloaded the RED ROCKET-X Installer. For more information about how to download the RED ROCKET-X Installer, go to “Download Driver and Firmware” on page 25.
3. Ensure that you have already installed the RED ROCKET-X driver. For more information about installing the RED ROCKET-X driver, go to “Install RED ROCKET-X Driver” on page 25.
4. Locate and open the **RED_Rocket-x_Installer_vx.x.x** folder.
5. Open the folder for your operating system:
   - **RED_Rocket-X_MacOSX**
   - **RED_Rocket-X_Windows**
6. Open the firmware folder for your operating system:
   - **REDrocket-X_OSX_firmware_x.x.x.x**
   - **REDrocket-X_Win_firmware_x.x.x.x**

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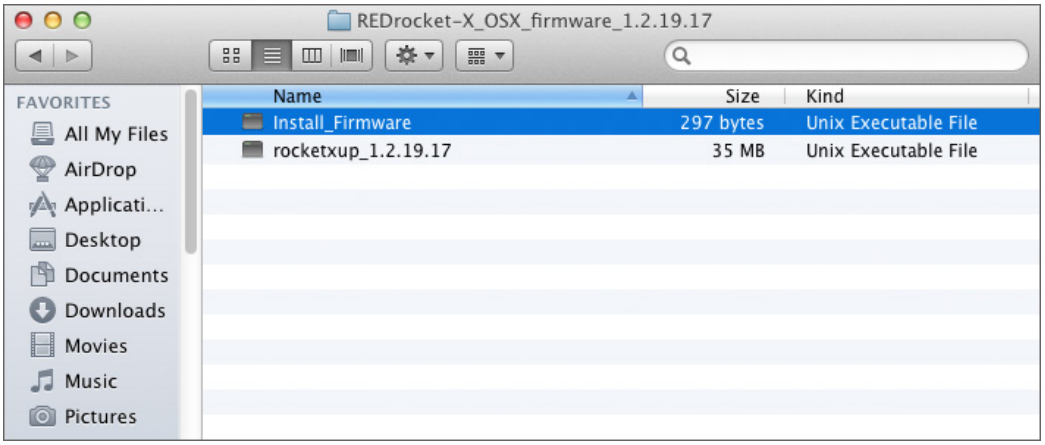
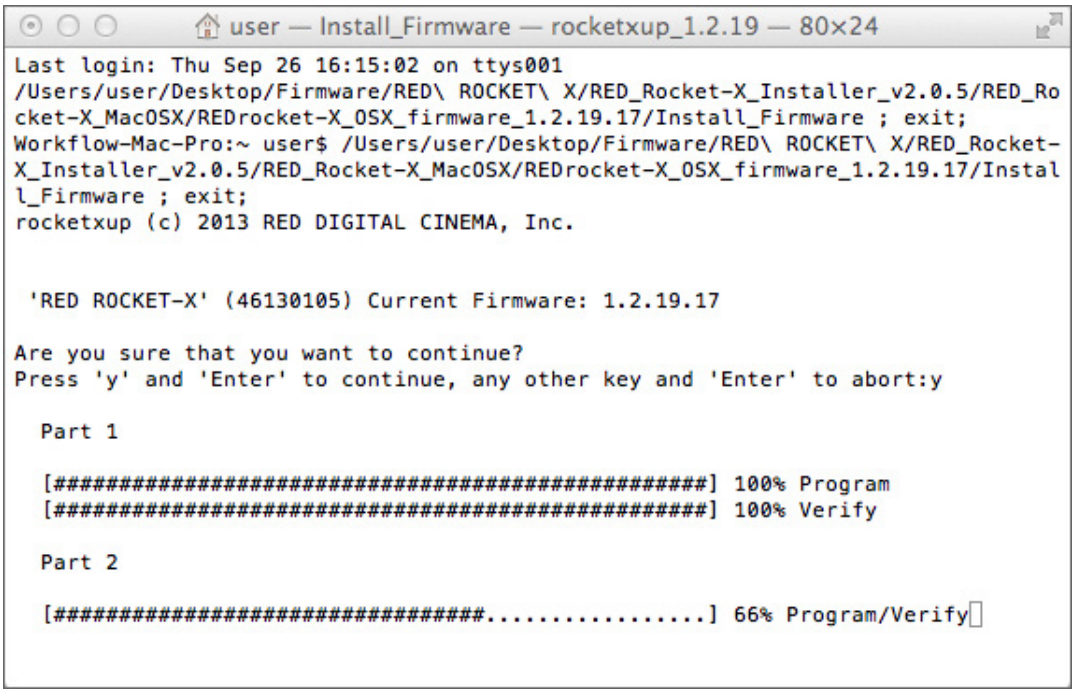
7. Open the **Install_Firmware** file.



A terminal window (Mac) or command window (Windows) opens with “ROCKETXUP” in the title. The following information displays:

- Your RED ROCKET-X serial number
- The firmware version currently installed on your RED ROCKET-X

8. Respond to the prompt to confirm which RED ROCKET-X cards to install:
   - To upgrade one (1) RED ROCKET-X: Type **Y** and press **Enter**.
   - To upgrade all RED ROCKET-X: Type **A** and press **Enter**.
   - To cancel the upgrade: Press any other key and press **Enter**.


user — Install_Firmware — rocketxup_1.2.19 — 80×24
Last login: Thu Sep 26 16:15:02 on ttys001
/Users/user/Desktop/Firmware/RED\ ROCKET\ X/RED_Rocket-X_Installer_v2.0.5/RED_Rocket-X_MacOSX/REDrocket-X_OSX_firmware_1.2.19.17/Install_Firmware ; exit;
Workflow-Mac-Pro:~ user$ /Users/user/Desktop/Firmware/RED\ ROCKET\ X/RED_Rocket-X_Installer_v2.0.5/RED_Rocket-X_MacOSX/REDrocket-X_OSX_firmware_1.2.19.17/Install_Firmware ; exit;
rocketxup (c) 2013 RED DIGITAL CINEMA, Inc.
'RED ROCKET-X' (46130105) Current Firmware: 1.2.19.17
Are you sure that you want to continue?
Press 'y' and 'Enter' to continue, any other key and 'Enter' to abort:y
Part 1
[##] 100% Program
[##] 100% Verify
Part 2
[##################################.................] 66% Program/Verify

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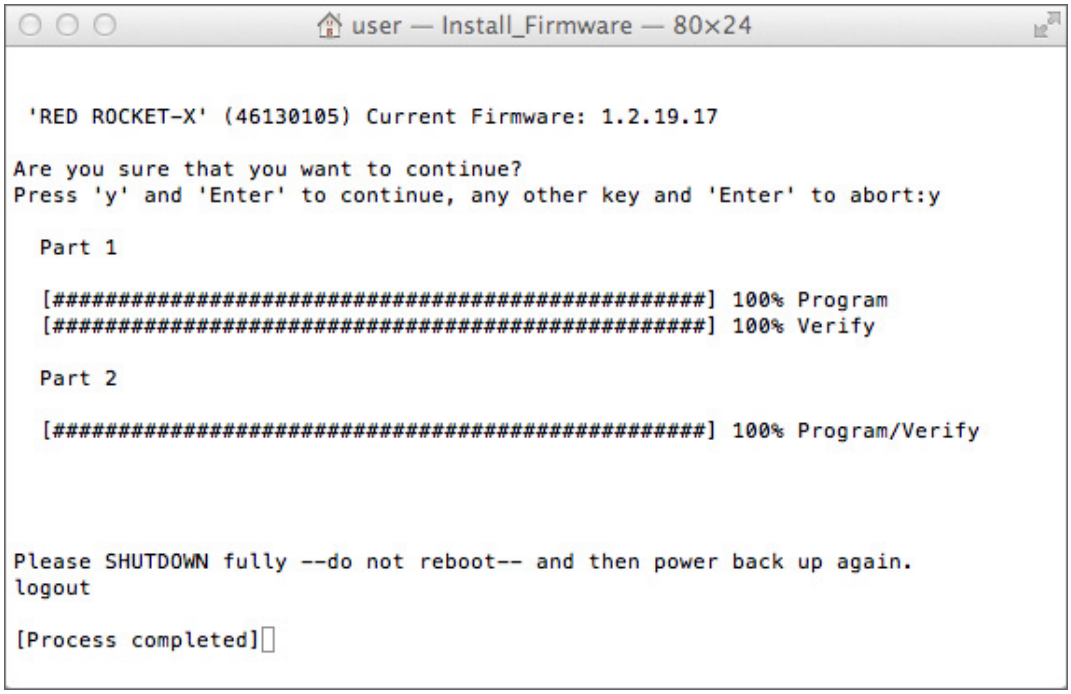
The upgrade process begins, and may take several minutes. A progress bar displays in the terminal window.

After the firmware is upgraded, you will be prompted to fully shut down the computer and power back up again.


user — Install_Firmware — 80×24
'RED ROCKET-X' (46130105) Current Firmware: 1.2.19.17
Are you sure that you want to continue?
Press 'y' and 'Enter' to continue, any other key and 'Enter' to abort:y
Part 1
[##] 100% Program
[##] 100% Verify
Part 2
[##] 100% Program/Verify
Please SHUTDOWN fully --do not reboot-- and then power back up again.
logout
[Process completed]

9. Close the terminal/command window.
10. Shut down the computer. DO NOT simply restart the computer.
11. Wait a minimum of 60 seconds.
12. Start the computer.
13. To verify that the system recognizes the RED ROCKET-X, go to “Validate RED ROCKET-X Installation” on page 37.

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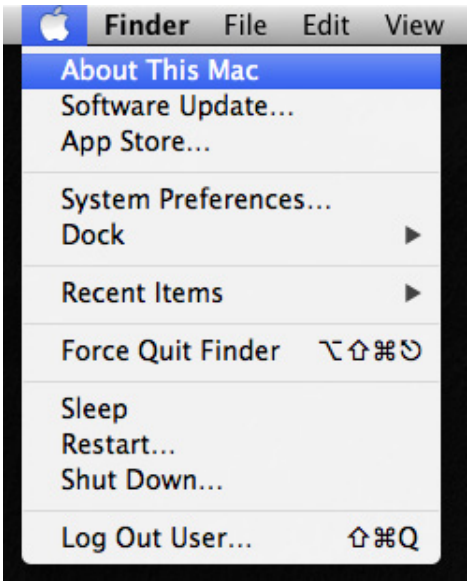
VALIDATE RED ROCKET-X INSTALLATION

After installation, verify that the computer recognizes the RED ROCKET-X.

VALIDATE RED ROCKET-X INSTALLATION (MAC OS X)

Follow the instructions below to ensure that your system recognizes the RED ROCKET-X:

1. Click the **Apple** icon and select **About This Mac**.



2. Click **More Info...**.

About This Mac
Mac OS X
Version 10.7.5
Software Update...
Processor 2 x 2.66 GHz 6-Core Intel Xeon
Memory 6 GB 1333 MHz DDR3
Startup Disk Macintosh HD
More Info...
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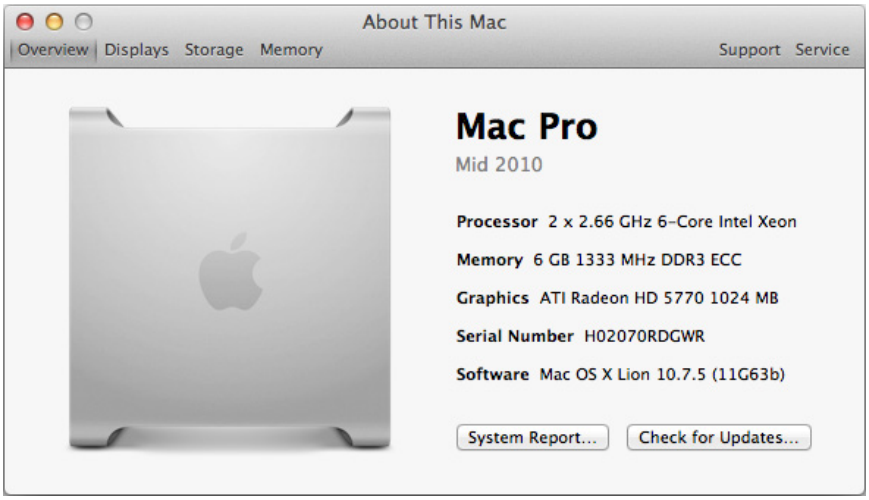
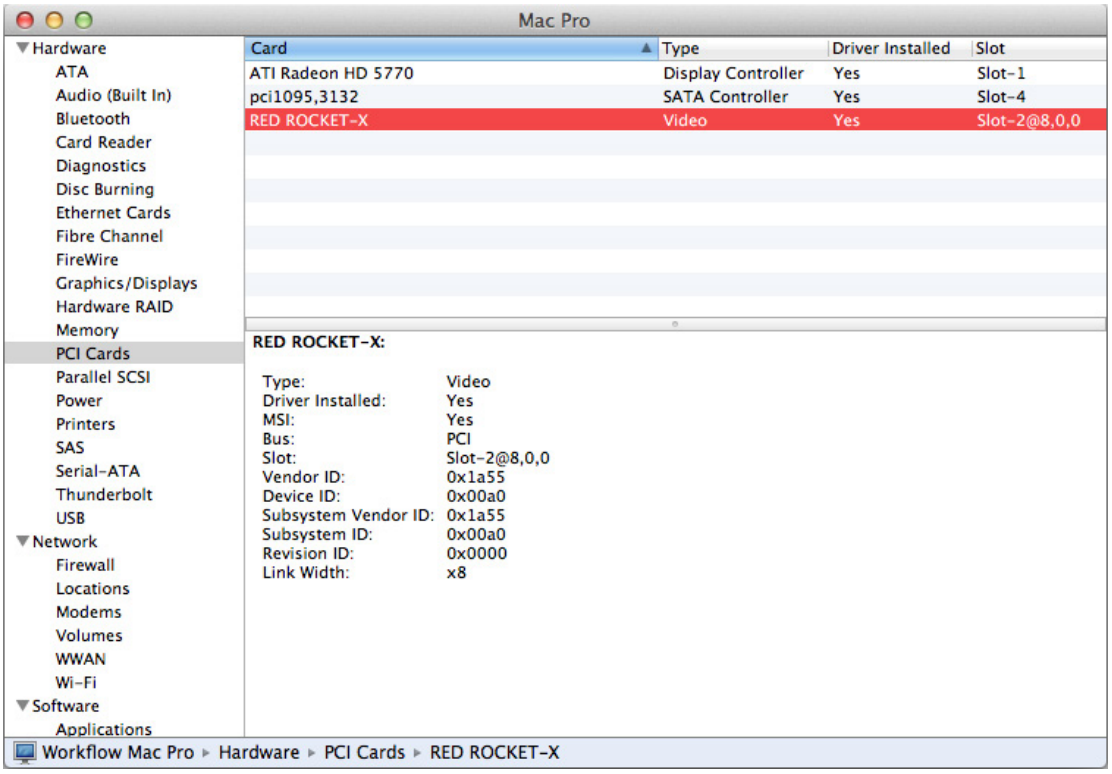
3. Click **System Report**.



4. Go to **Hardware** > **PCI Cards**.

   The RED ROCKET-X is listed as one of the video cards.

   If you installed the RED ROCKET-X in a Thunderbolt expansion chassis, make sure that the Thunderbolt expansion chassis displays. Otherwise, ensure that the Thunderbolt expansion chassis is powered up and connected to your computer system.



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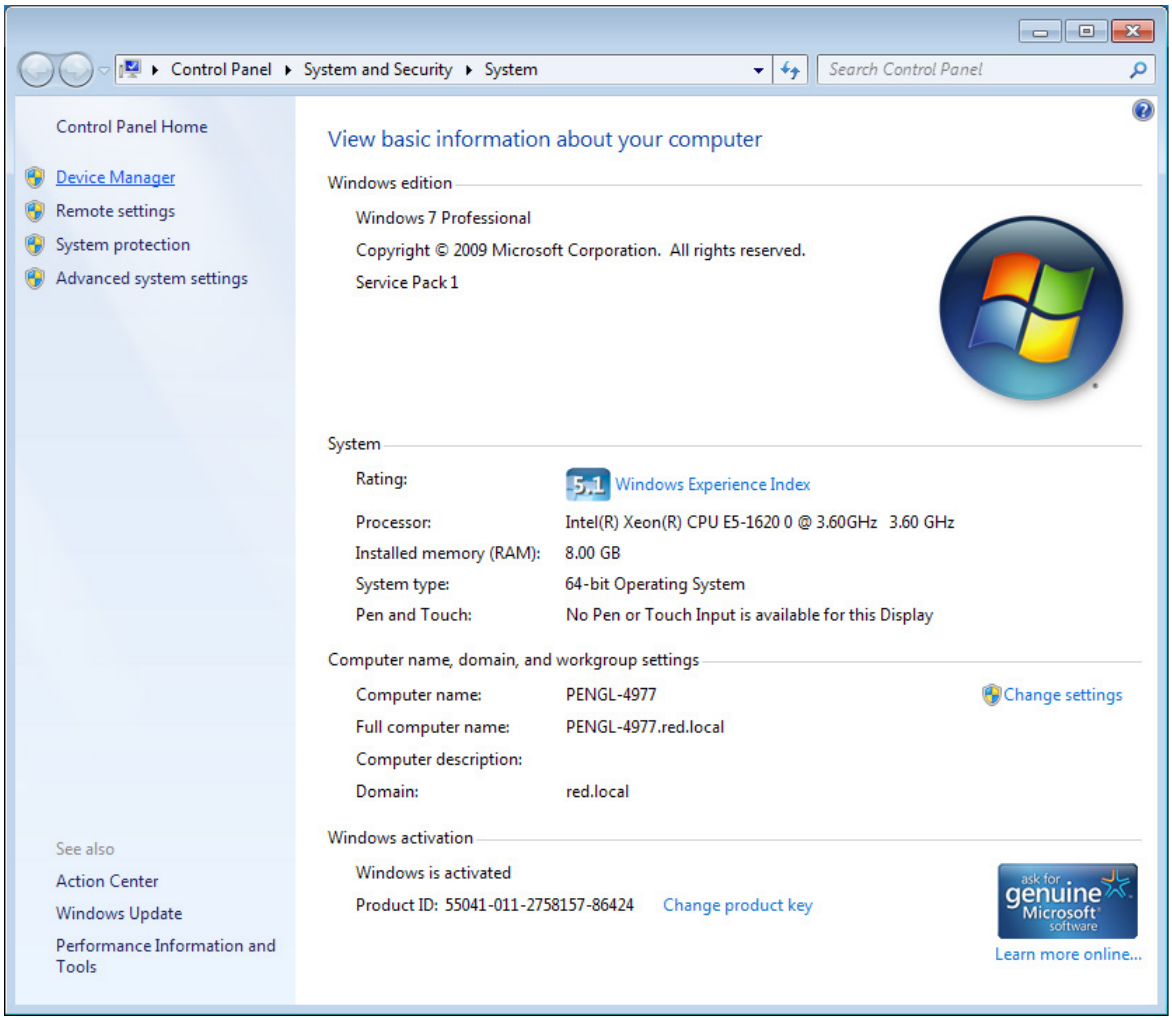
VALIDATE RED ROCKET-X INSTALLATION (WINDOWS)

Follow the instructions below to ensure that Device Manager recognizes the RED ROCKET-X:

1. Click **Start**.
2. Right-click **Computer**.
3. Select **Properties**.
   The System window opens.
4. Click **Device Manager**.



5. Expand **Sound, video and game controllers**.
6. Right-click **RED ROCKET-X**.

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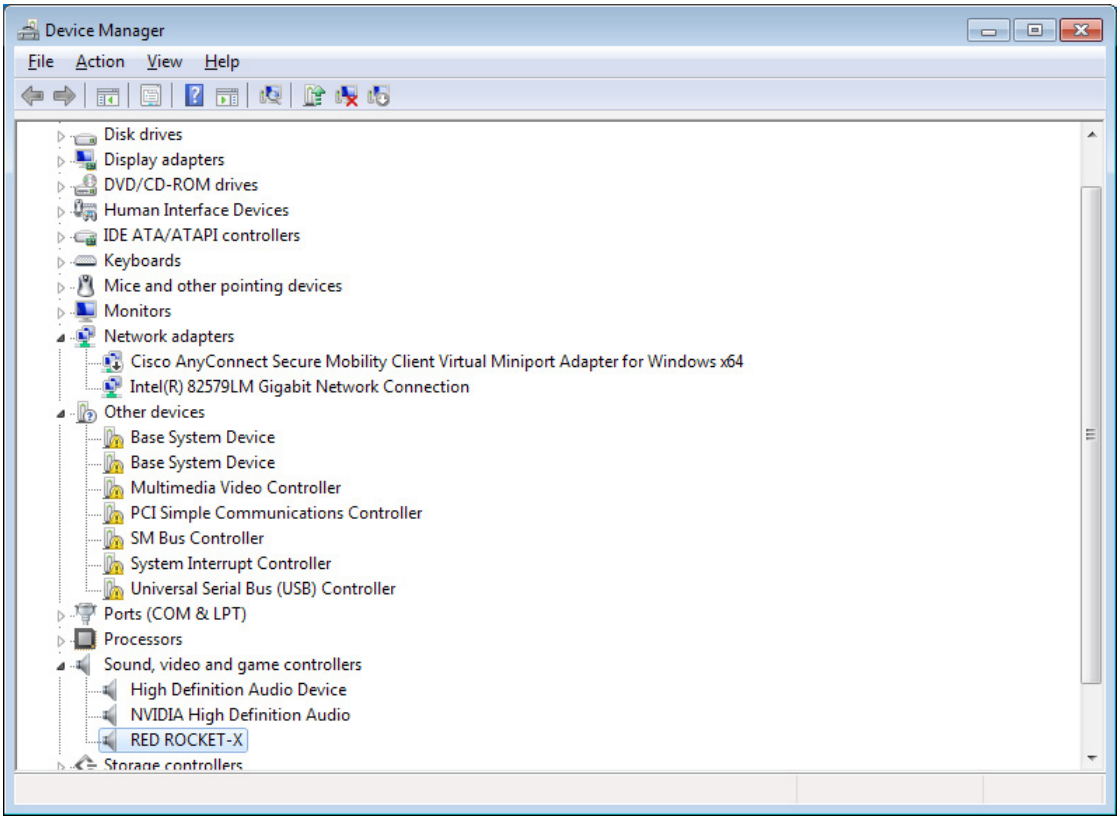
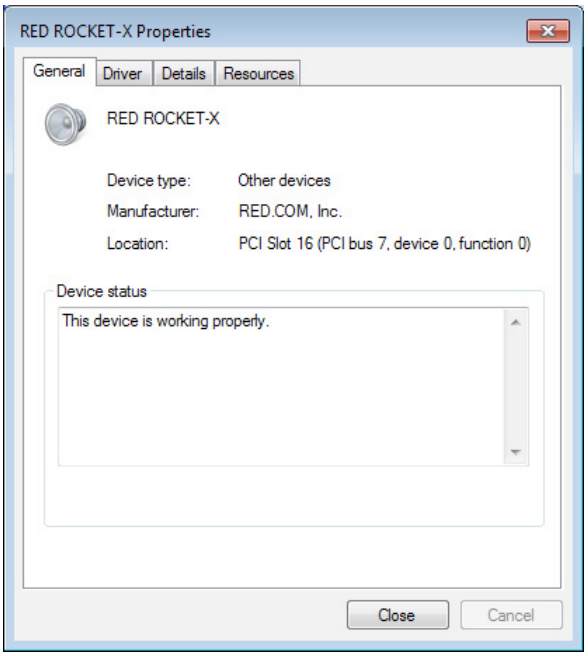
7. Select **Properties**.



The RED ROCKET-X Properties window opens.

8. View the properties of the RED ROCKET-X.



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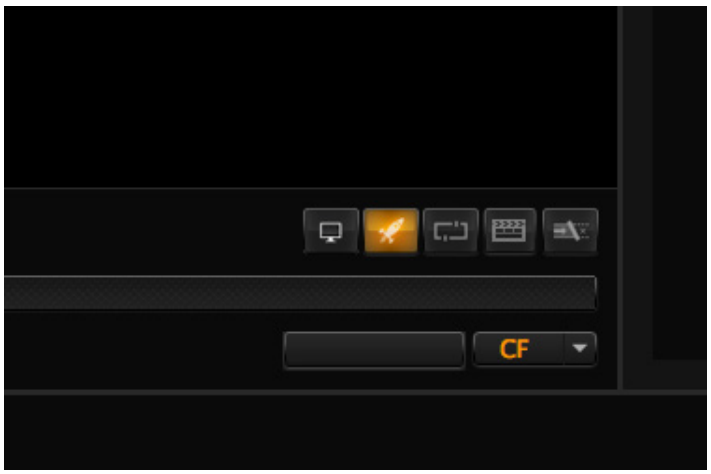
07 SET UP RED ROCKET-X IN REDCINE-X PRO

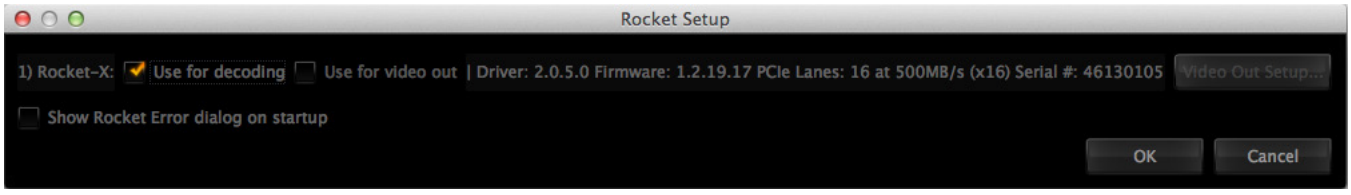
1. Open REDCINE-X PRO®.
2. Click the **RED ROCKET** icon.



The Rocket Setup window opens. If the window does not open, then the RED ROCKET-X®, firmware, and/or driver are not installed.

3. Select the check boxes that apply to how you want to use the RED ROCKET-X:
   - **Use for decoding**
   - **Use for video out**

     NOTE: The RED ROCKET icon is orange when either of the check boxes above are selected.
   - **Show Rocket Error dialog on startup**: Select this to display an error in the Status panel when the RED ROCKET-X is installed in a lane slower than a x16 slot. For example, if your RED ROCKET-X is installed in a Thunderbolt expansion chassis, you will most likely see this error because the majority of Thunderbolt expansion chassis do not have x16 slots.



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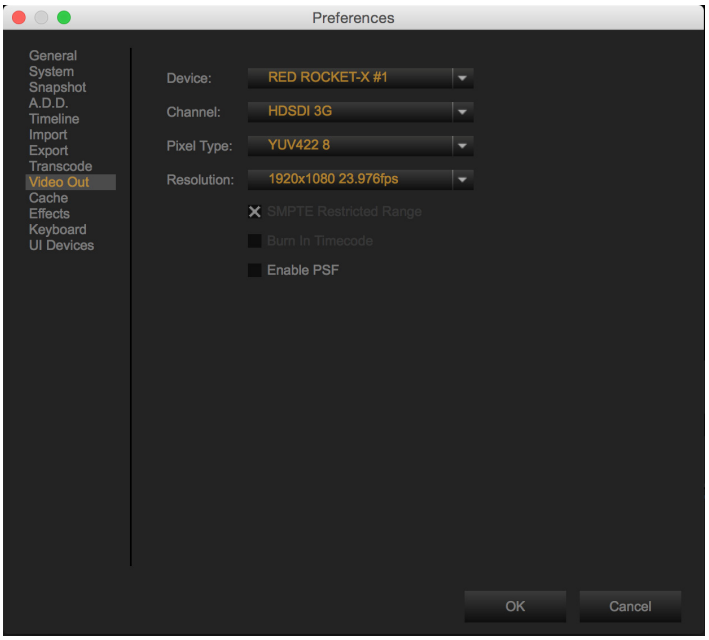
SET UP VIDEO OUT

With the RED ROCKET-X, you can perform video out in REDCINE-X PRO. At this time, you cannot perform video out with a third party application.

1. Go to the REDCINE-X PRO Preferences window:
   - **Mac**®: Click **REDCINE-X PRO** and select **Preferences**.
   - **Windows**®: Click **Edit** and select **Preferences**.

   The Preferences window opens.
2. Select **Video Out** in the left panel.
3. Select **RED Rocket-X #1** from the **Device** drop-down menu.

   The default video out preferences populate the available fields.
4. Update the video out preferences if needed and click **OK**.



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08 TROUBLESHOOT RED ROCKET-X

TRANSCODE SPEEDS

SYMPTOM

Transcoding footage takes longer than expected.

POTENTIAL RESOLUTIONS

Many factors affect transcode speeds. In general, the following factors decrease the transcode speed: long clip length; high resolution; high frame rate; and low compression. Here are a few options that may increase transcode speeds:

- Ensure that REDCINE-X PRO® is up-to-date.
- Ensure that the RED ROCKET-X® firmware and driver are up-to-date.
- If the RED ROCKET-X is in a Thunderbolt™ expansion chassis, install the RED ROCKET-X in a Mac Pro® tower instead of the Thunderbolt expansion chassis.
- Use a different Non-Linear Editing (NLE) tool.

HDMI ADAPTOR NOT WORKING

SYMPTOM

HDMI adaptor for HDMI Output over DisplayPort is not working.

EXPLANATION

HDMI Output through DisplayPort to HDMI adaptor is not supported in the current driver firmware.

RED ROCKET-X OUT OF DATE

SYMPTOM

REDCINE-X PRO displays the following warning: “RedRocket # Driver or firmware is out of date.”

POTENTIAL RESOLUTION

Re-download and re-install REDCINE-X PRO and the RED ROCKET-X Installer.

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REDUCED PERFORMANCE OVER THUNDERBOLT

SYMPTOM

REDCINE-X PRO displays the following warning: RED ROCKET-X is connected over Thunderbolt and may have reduced performance when playing or exporting at high/full resolution.

EXPLANATION

Thunderbolt 1 and 2 provide less bandwidth than a traditional PCIe slot in a Windows®-based computer or older Mac Pro. This may result in non-real-time playback or slow export for 4K or higher clips when viewing or exporting at full resolution.

POTENTIAL RESOLUTIONS

- Decrease the REDCINE-X PRO playback resolution.
- Export your footage at a lower resolution.
- Install the RED ROCKET-X in a computer with PCIe slots.

MAC OS X SYSTEM INFORMATION SHOWS INCORRECT NUMBER OF PCIE LANES FOR ROCKET-X

SYMPTOM

Mac OS X System Information may show the RED ROCKET-X as a x8 PCIe card, even though the card is installed in a x16 slot.

EXPLANATION

This is normal behavior for the RED ROCKET-X under Mac OS X and does not impact the performance of the RED ROCKET-X. To view the correct number of PCIe lanes, go to the RED ROCKET setup dialog window in REDCINE-X PRO.

THUNDERBOLT EXPANSION CHASSIS INSTALLATIONS

MAC PRO DOES NOT RECOGNIZE RED ROCKET-X IN THUNDERBOLT EXPANSION CHASSIS

SYMPTOM

You install the RED ROCKET-X driver and firmware, but the Mac Pro does not recognize the RED ROCKET-X.

EXPLANATION

During both the driver install procedure and the firmware install procedure, the installer prompts you to restart the computer. You must disconnect power from the Thunderbolt expansion chassis during the restart process.

POTENTIAL RESOLUTION

When the installer prompts you to restart your computer during both the driver install procedure and the firmware install procedure, disconnect and then reconnect power to the Thunderbolt expansion chassis during the restart process.

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REDCINE-X PRO DOES NOT RECOGNIZE RED ROCKET-X IN THUNDERBOLT EXPANSION CHASSIS

SYMPTOM

A RED ROCKET-X is installed in a Thunderbolt expansion chassis that is connected to your Mac Pro. The Mac Pro recognizes the RED ROCKET-X but REDCINE-X PRO does not.

EXPLANATION

A Thunderbolt expansion chassis is hot-swappable, but the RED ROCKET-X is not. If you have a RED ROCKET-X installed in a powered Thunderbolt expansion chassis and you disconnect and then reconnect the chassis from the Mac Pro, REDCINE-X PRO will not recognize the RED ROCKET-X

POTENTIAL RESOLUTIONS

- Connect a powered Thunderbolt expansion chassis to the computer, and then restart the computer.
- Install the RED ROCKET-X in a Mac Pro tower instead of the Thunderbolt expansion chassis.

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A TECHNICAL SPECIFICATIONS

TECHNICAL DATA

CAUTION: The chassis of the computer system where the RED ROCKET-X® is installed must be equipped with sufficient ventilation to ensure proper cooling.

SPECIFICATION	DESCRIPTION
PCI Bus Requirements	▸ PCIe slot that accepts a x16 card, and has 16 lanes of data for maximum performance ▸ One (1) 6-pin PCIe power cable
Board Size	Full-length PCIe (approx. 12" length), single-slot
Operating Temperature Range	5°C to 40°C (41°F to 104°F)
Storage Temperature Range	–20°C to 50°C (–4°F to 122°F)
Operating Humidity Range	20% to 80%, non-condensing
Storage Humidity Range	10% to 80% relative humidity, non-condensing

HARDWARE SPECIFICATIONS

VIDEO	OUTPUT
HDMI Dual Mode Display	2 DisplayPort
Serial Digital 4:2:2 8/10 bit (Single Link)	1 BNC
Serial Digital 4:4:4 8/10/12 bit (Dual Link)	2 BNC
AUDIO	**OUTPUT**
Embedded Audio	1 BNC (Via Video Out)
TIMECODE	**OUTPUT**
Vertical (VITC)	1 BNC (Via Video Out)
DATA FORMATS	**DESCRIPTION**
Color Modes	YCbCr 4:2:2 RGB 4:4:4
Internal Processing	Real-time REDCODE® decoding, debayering, and scaling
Audio Formats	48 kHz, 24 bit

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SUPPORTED INPUT FORMATS

The RED ROCKET-X supports all EPIC, SCARLET®, and RED ONE® formats.

RED ROCKET AND RED ROCKET-X COMPATIBILITY

	RED ROCKET	RED ROCKET-X
DSMC		
RED DRAGON®	—	√
MYSTERIUM-X®	√	√
MYSTERIUM®	√	√
MONOCHROME	√	√
RED DRAGON MONOCHROME	—	√
RED ONE		
MYSTERIUM	√	√
MYSTERIUM-X	√	√

SUPPORTED HD-SDI SIGNALS

SIGNAL	DATA RATE	DESCRIPTION
3G-SDI	3Gbps	Single HD-SDI signal transmitted through SDI Out A
Single Link HD-SDI	1.5Gbps	Single HD-SDI signal transmitted through SDI Out A
Dual Link HD-SDI	2.5Gbps	Two (2) HD-SDI signals split between SDI Out A and SDI Out B

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